[From Erastus: Varia Opuscula Medica. Francofurdi, 1590.]

ANNALS OF MEDICAL HISTORY

New Series, Volume II　July, 1930　Number 4

THE PHYSICIAN OF THE DANCE OF DEATH

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INTRODUCTION

THE time is that of the late fourteenth century. The place is the cloister of the churchyard of a monastery in the upper Rhine valley. The sunlight of a September afternoon strikes slanting across the tombstones and paints geometrical patterns of pale gold upon the stone pavement of the cloister passage. On the opposite wall-spaces the reflected light illumines the dim painted pictures of a great wall fresco. On the left there is a charnel house heaped high with grinning skulls; on its steps stand two mummy-like figures of the dead, one blowing a trumpet, the other a fife and beating a drum with its right hand. Before the steps is an open grave from which skeletonized and mummified dead are springing with wild and unseemly gestures. Their slit bellies, their empty orbits and sunken noses, the protruding heads of snakes coiled in the body cavities, their shrivelled skin and muscles, all picture the repulsive features of advanced putrefaction. One sniffs the air unconsciously. Passing along the cloister there is met on the frescoed wall a strange procession of the living and the dead, hand in hand, in single file, all coming towards the open grave and the charnel house. With wild demonic glee the dead seize upon the living, and leap about in a frenzied springing dance, forcing them to join the row, which moves on in a sort of slow polonaise advance. The living appear shocked, or sadly resigned; some of them in their drooping figures betray the advent of dissolution. Heading the procession is the Pope with his triregnum and double cross; upon the ground lies an indulgence with the papal seals. Death holds his right hand, and drums upon a skull with a thigh bone. Upon the wall is the legend:

Der Tod zum Papste:

Herr Papst, merket auf der Pfeifen Ton,
Ihr sollt darnach springen schon;
Es hilf dafür kein Dispensir'n,
Der Tod will auch den Tanz hofir'n.

Antwort des Papstes:

Ich wurde ein heil'ger Vater genannt,
Dieweil ich lebte an Furcht bekannt;
Nun werd ich geführet freventlich,
Zum Tode, ich wehr' mich üppiglich.

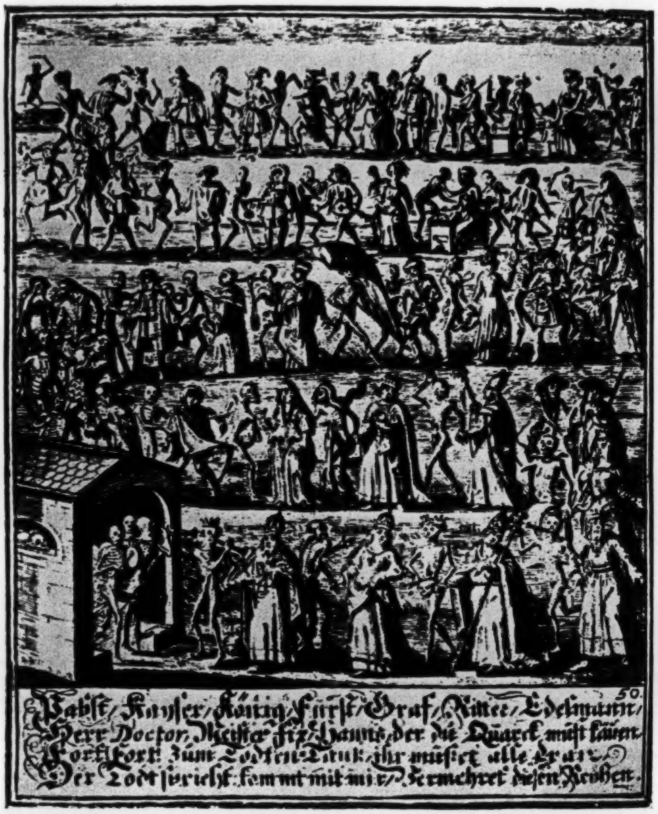
Pabſt/Kayſer/König/Fürſt/Graf/Ritter/Edelmann/
Herr Doctor/Meiſter Fix/Hanns/der die Quarck muſt käuen.
Fort/Fort! Zum Todten-Tantz/ihr müſſet alle dran.
Der Todt ſpricht: kommt mit mir/vermehret dieſen Reihen.
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FIG. 1. THE DANCE OF DEATH. FROM "GESPRÄCHE IN DEM REICHE DERER TODTEN," LEIPZIG, 1723.

Then follows the Kaiser with his sword, scepter and crown.

Der Tod zum Kaiser:

Herr Kaiser, euch hilft nicht das Schwert,
Zepter und Krone sind hier unwert,
Ich hab' euch an die Hand genommen,
Ihr müsset an meinen Reigen Kommen.

Antwort des Kaisers:

Ich konnte das Reich in hohen Ehren,
Mit Streiten und Fechten wohl vermehner;
Nun hat der Tod überwunden mich,
Dasz ich bin weder Kaiser noch Menschen
gleich.

Next comes a female death with long flowing hair, with the Kaiserin in hand, in the full pride of her state and beauty. With head averted and eyelids closed she unwillingly follows. After her the King and Queen, each with their dancing attendant dead; and then the Cardinal with his red hat.

Der Tod zum Cardinal:

Springet auf mit eurem roten Hut,
Herr Cardinal, der Tanz ist gut,
Ihr habt gesegnet wohl die Laien,
Ihr müszt mit an des Todes Reihen.

Antwort des Cardinals:

Ich war mit päpstlicher Wahl,
Der heiligen Kirche Cardinal.
Nun bin ich dazu gezwungen gar,
Dasz ich tanze an des Todes Schar.

Then follow the Patriarch, the Archbishop and the Duke, each linked hand in hand with his appropriate death and with each other into the long continuous line of march.

Der Tod zum Herzoge:

Habet ihr mit Frauen hoch gesprungen,
Stolzer Herzog, oder wol gesungen,
Das müsset ihr an dem Reigen büszen,
Wol her! laszt euch die Toten grüszen.

Antwort des Herzogs:

Ich hab' die edelen Herren wert,
Als ein Herzog regieret mit dem Schwert;
Nun werd' ich in reicher Kleider Glanz,
Geswungen zu des Todes Tanz.

Next in turn the Bishop with his crook, the Count in full panoply, the Abbot and the Knight, each figure with his appropriate dialogue with the dead who has seized upon him. After these come other representatives of the Church and Secular orders, and then the Jurist, the first of the professions to be included in the Dance.

Der Tod zum Juristen:

Das Urtheil ist also gegeben,
Dasz ihr länger nicht sollt leben;
Herr Jurist, das thut des Todes Kraft,
Möget ihr so bewahren eure Meisterschaft.

Antwort des Juristen:

Kein Appeliren zu dieser Zeit,
Hilft vor des Todes hartem Streit;
Er überwind't mit seinem Geschlecht,
Das geistlich und das weltlich Recht.

A little farther on comes the Physician, who in the shock of the encounter with Death, drops and breaks the urine bottle which he had been examining.

Der Tod zum Arzte:

Herr Arzt, gebet euch selber Rat,
Mit eurer meisterlichen That;
Ich führe euch zu des Todes Gesellen,
Die mit euch hier tanzen wollen.

Antwort des Arztes:

Ich hab' mit meinem Wasserschauen,
Gesund gemachet Mann und Frauen.
Wer will nun machen mich gesund,
Ich bin doch zum Tode verwund't.

As one passes along under the cloister arches, these wall-paintings reveal to us the panorama of human life: all classes of human society, all ranks and degrees of social position, man and woman, the old and the young, the great and the most humble, the rulers and the ruled, the rich and the poor, the learned and the ignorant, all professions and trades, down to the peasant, the fool and the little child—all called together to the common equality of death.

Hier richt' Gott nach dem Rechten,
Die Herren liegen bei den Knechten.
Nun merket hierbei,
Wer Herr oder Knecht gewesen sei.
Hier liegen also unsere Gebein',
Zu uns her tanzet grosz und klein.
Die ihr jetzt seid, die waren wir,
Die wir jetzt sind, die werdet ihr.

The golden September sun is sinking, under the cloister arches the light grows dim, the paintings on the wall fade into vague patches of color, but still we linger, in the contemplation of the soul of the Middle Ages, so nakedly revealed in this panorama of Death. Out of the mysterious obscurity of the thirteenth and fourteenth centuries we feel strange ancestral influences moving our souls to a melancholy sympathy for the dark and troubled lives of our forefathers in those sad and fearful centuries—their lives passed in the daily fear and contemplation of death, in the shadow of well-nigh continuous war and pestilence.

The great folk-drama of human life

displayed in this monumental wall painting constitutes the Toten Tanz or Danse Macabre motive, which for more than half a thousand years had an extraordinary vogue in the literature and art of Middle Europe. Its origin is unknown; we do not know the name of the artist who first painted a Dance of Death, or that of the poet who produced the first literary form of the motive. France apparently gave birth to the idea; and it is certain that its appearance in dramatic form preceded that of the wall-paintings. Performances of a Danse Macabre play are mentioned in the literature, and the oldest known form of the poem, the Spanish "Dança general de la muerte," without illustrations, indicates clearly its origin in some dramatic form. Probably originally a Church play, performed within the church or churchyard, for the religious-didactic instruction of the people, the first form of the poem represented a dance of the living with the dead. Later the *dead* became personified as *Death*, and this personification of the skeletonized human body as representing the process of death has persisted in our art and literature since the fourteenth century.

Many elements and many factors contributed to the origin of the Toten Tanz motive. During the early Christian centuries the *carpe diem* philosophy of the ancients gradually became replaced by that of the Christian *memento mori*. Faith became superstition in the Dark Ages among the uneducated and ignorant people; the remnants of learning and spiritual life were found only in the Church; the laity could scarcely read or write. In order to enforce its teachings of a moral life, the Church found that its most efficient method was in the emphasis laid upon Death, the Last Judgment, and the alternative future of Heaven or Hell. The inevitableness of death for all human beings, the uncertainty of its hour, and the eternity thereafter formed the favorite and most effective sermon material of the period. And such sermons were made more objective and impressive through religious dramatic spectacles, pictures and sculptures, and later through the medium of the popular woodcut. Numerous Latin poems of the eleventh and twelfth centuries celebrated the power of death, from which no one can escape, and of life in another land beyond the grave. Among these were the celebrated "Vision Fulbert's" and the "Vado Mori" poems. The latter had existed in manuscript form since the beginning of the thirteenth century. They treat of the same theme as the Toten Tanz, the consciousness of the nearness of death from which there is no escape, the inevitable hard common lot, and the necessity for repentance before it becomes too late. In these poems a representative of each class and rank of society speaks a verse which begins and ends with "vado mori," and the thought expressed in this verse varies with the attributes of the person speaking. For example, the physician says:

Vado mori medicus, medicamine non redimendus,
Quidquid agat medici pocio. Vado mori.

In the eighteenth century this poem became extremely popular throughout the whole of central Europe, acquiring the liturgical or prayerbook significance of a veritable Litany of Death.

The most famous of the literary predecessors of the Toten Tanz was the legend of "Li trois Vifz et li trois Mors." Three knights are hunting in the forest. Suddenly they come upon three death forms who remind them of the fleeting nature of all earthly glory. In its various forms this legend, which dates from the beginning of the eleventh century, is but a variation of the same theme which underlies that of the Dance of Death motive. It appeared in numerous French, German, Italian and English manuscripts, in wood-cuts, copperplates, miniatures, paintings, wood carvings and sculptures. While its main theme remained unchanged, its content became greatly varied and much enriched along the line of the Toten Tanz. The oldest and most celebrated of its pictorial representations is the famous wall-painting, the "Triomfo della morte" in the Campo Santo at Pisa, dating from about 1350. In many of its literary and pictured forms it closely resembles the poems and scenes of the Dance of Death; so close is this similarity that many writers have seen in the legend of the three living and the three dead, the original source of the Toten Tanz idea. Numerous intermediate forms exist between the legend and the Dance of Death; but in spite of the close relationship between the two themes, there is no positive proof that the legend is the parent form of the Toten Tanz. Moreover, in the legend and its variants there is no hint of the association of the dance or of music with death, which is the most striking feature of all the Dances of Death proper. The explanation of this association of Death and the Dance is the great problem of the latter. How did two things so remote from each other come to be united in this motive? Some writers refer the origin of this association to the influence of the superstition, common to all of central Europe, of the midnight dance of the dead in the church yards. Moreover, it is more reasonable to attribute the dialogue-form of the Toten Tanz, as well as its satire on social equality to the Visions and the Vado Mori poems. Perhaps from all of these sources there

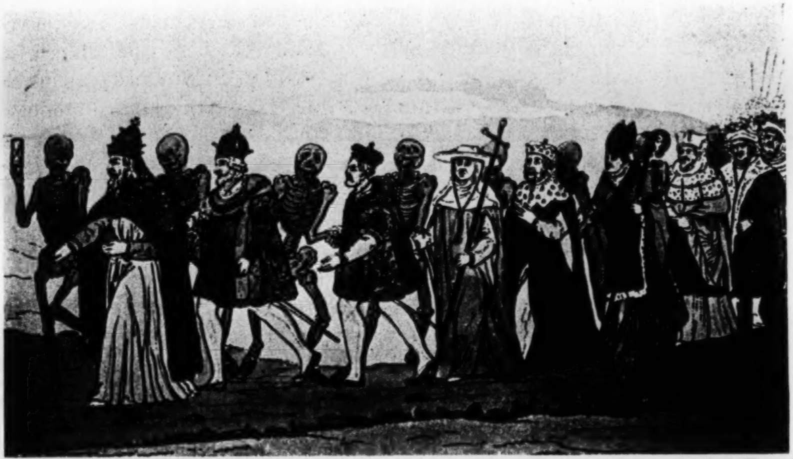


FIG. 2. THE DANCE OF DEATH. FROM HOLLAR'S PLATES AFTER HOLBEIN, LONDON, 1816. THIS PLATE IS ASCRIBED TO HOLLAR, WHO IS SAID TO HAVE COPIED IT FROM AN OLD WOODCUT PREFIXED TO LYDGATE'S DANCE OF MACABER, PRINTED BY TOTTELL IN 1554.

gradually evolved the motive of the Dance.

The most satisfactory explanation of the origin of the Toten Tanz motive is to be found in the psychology of the times, which constantly stressed the thought of death and the vanity of all earthly things. The Middle Ages felt the primitive horror of death, as no other epoch has done, and expressed this feeling in the concrete embodiment of Death in the form of the putrescent cadaver. Death was thought of only in its horrible and gruesome aspects; there was no conception of death as a release from suffering, or as a rest for the weary. Of the consolations of death the Middle Ages had no conception. The fixed idea of the times was the individual's fear of death for himself; the fear of the agony of death transcended all other emotions; the chief mental image was that of the transitory nature of all things. This was indeed a very materialistic conception of death. We would say now that the Middle Ages had developed a death-complex, based upon the fear of death, which it satisfied by the constant contemplation of death's most unpleasant and awful aspects, taking actual pleasure in such horrors. It was a neurotic and psychopathic age, as shown in its superstitions, its religious fanaticism, its sensuality, belief in witchcraft and magic, its pleasure in torture, the dancing manias of the Rhine villages and in a thousand other manifestations of an unbalanced and uncontrolled mentality. To the mind of the period the visions of the Apocalypse made special appeal. A natural, though pathologic, reaction to the environment of the times! What else could be expected from minds exposed to daily contact with the danger of death; in the cities during these centuries pestilence almost day by day claimed its victims by the thousands; war and famine took also their share; and in each man's mind must have been the thought of the possibility of his impending end. Perhaps in time a certain degree of cynicism, or of actual indifference colored his feeling.

Opposed to this psychologic state of the fear of death, the Church offered the possibilities of salvation through righteous living. The wandering mendicant preachers made the most of such promises in their sermons. Out of all these sources, liturgy, sermons, mystery play, legends and poems, together with the morbid psychology and superstitions of the people there evolved a great folk-cultural idea which took form ultimately in the Dance of Death as expressed in the great wall-paintings and woodcuts of the period, and which, even today, retains its hold upon the imagination of man. From the very beginning this motive presented a satire on social equality, in that death makes all men equal and levels all distinctions; to this democratic concept religious and political satires were later added, especially during the Reformation period. All of these motives crystallized into an art form, in which Death personified as a skeleton collects into a chain or "Reigen" representatives of all classes of human society, and dances with them to the grave. In its variant art forms it represents a great cultural index of nearly six centuries of human life, and its significance in the cultural evolution of modern society cannot be disregarded. It had its origin in the soul of the people; and the main themes of the Dance of Death are as potent today as ever they were, though altered in their significance; and they will retain their value for the human mind as long as the race persists.

It was thought that a study of the Physician of the Dance of Death might prove interesting, and perhaps of some value, representing as he does nearly six centuries of the development of medical knowledge and practice. From the standpoint of costume alone, such a study might be worth while, but more important than this, it should reveal something of the physician's social standing through the ages, how and what he appears to the layman, and the latter's opinion of him. It should constitute a revelation of professional manners and mannerisms, of the progress in the knowledge and practice of medicine, and give a true picture of the type of man who becomes a physician.

The oldest Dance of Death of which the date of origin is positively known is that of the wall paintings of the cloister of the Cemetiére Aux Innocents in Paris, which were begun in August, 1424, and completed in the following year. Throughout the fifteenth century the Toten Tanz motive appeared on the walls of the charnel houses, cloisters, churchyards and cemeteries in France, Switzerland, Germany, Italy and England. Among those of which we possess definite knowledge are the frescoes of Kermaria, La Chaise-Dieu, Klingenthal, Basel, Lübeck, Berlin, Clusone, Pizzolo, Berne, Strassburg, Luzern, Freiburg and Erfurt. The "Tod von Basel" was one of the most celebrated of these, and attracted many visitors to the old city on the Rhine, as many contemporary writings testify. The motive found representation also in paintings on wooden tablets, in tapestries and in sculptures, on clocks, drinking cups, borders of prayer books, and other objects of the most varied kind. Before the invention of printing the theme was presented in hand-illuminated manuscripts; then followed its tremendous development in woodcut and copper-plate, culminating in the Holbein masterpiece in 1535. From that time on, through the remainder of the sixteenth century, and through the next three centuries, the history of the evolution of the Toten Tanz is but that of countless imitators of Holbein who worked and reworked his formulae according to their individual conceptions of the theme. Among these later artists may be mentioned the unknown cutter of the blocks for Valgrisi's edition, De-Necker, Kieser, Meyers, Trost, de Mechel, Hollar, Rusting, Rentz, Frenzel, Deuchar and Bewick. Over one hundred editions of the Holbein cuts have appeared. Some of these many editions based upon Holbein showed much originality. In America the wood-cut artist Anderson essayed an imitation of the Bewick treatment of Holbein. A second series of Dance of Death editions was based upon Matthew Merian's copies, made in 1649, of the old wall paintings in Basel. These are to be found in many editions and imprints. A third series consists of reproductions of the Danse Macabre of Guyot Marchant, the first edition of which appeared in 1485, and to which we owe our chief knowledge of the wall-paintings in the Cemetery of the Innocents in Paris. In the early nineteenth century the Dance of Death motive became used as a vehicle for caricature, particularly in the hands of the English: Rowlandson, Van Assen, Hull and Dagley. In Germany the middle years of the last century saw the theme degenerate in the hands of uninspired artists into a mawkish sentimentality or morbidness. Rethel's work stands out as the best of this period. Lacking creative imagination to improve upon the Holbein model, the artists of the nineteenth century sought to give new interest to the theme by emphasizing the causes of death. Many of these modern Dances of Death are but catalogues of the different forms in which Death lurks for his victims. The progress made in the material world is reflected in the successive introduction of new forms of death, as those caused by the railway train, steamboat, theatre fire, bicycle, balloon, motor car and airplane. The old original theme had lost its power of appeal, and novelty in the cause of death assumed the rôle of chief importance in creating interest in the old theme of death. It remained for the Great War to give new life to the Dance of Death in the opportunity afforded by modern warfare for the creation of an interest in horror. Some of the works of this period show true inspirational value; others show striking realism. A further change in the modern treatment of the theme is the introduction of an altered attitude towards death, in its representation as a desired release from suffering and unhappiness. To many modern minds death has lost the horror with which the mind of the Middle Ages invested it. The modern has lost his fear of death, and meets it with resignation or bravery, or with cynical indifference. Many have lost their belief in a personal immortality; death is no longer the gate of entrance into another land, but is now regarded as the normal termination of the natural period of involution—the end of the individual life. With such a basic change in our conceptions of life and death, any modern treatment of the Dance of Death motive must reckon.

The historical treatment of the evolution of the Dance of Death falls logically into the following periods: 1, The Period of the Great Wall Paintings; 2, The Pre-Holbein Manuscripts, Block Books and the Incunabula; 3, Holbein; 4, The Imitators of Holbein; 5, The Period of Caricature; 6, The Modern Dance of Death.

PART I

THE PERIOD OF THE GREAT WALL PAINTINGS

The first Dance of Death to which an exact date can be given is the "Danse Macabre" of the cloisters of the churchyard of the Innocents in Paris. Definite historical evidence exists that it was begun in August, 1424, and finished six months later. It has been preserved to us in the woodcut editions of 1485 and 1486 by Guyot Marchant. Of the first edition only one copy remains to the present day, and that is in Grenoble. Numerous facsimiles and reproductions have been made of the two editions; that of 1867 is probably the best for the woodcuts, for the text that of 1875. The origin of the word *Macabre*, in spite of countless investigations, is still in doubt, but it is certain that it was known in the fourteenth century as the name of the mystery play of the Toten Tanz. It is first mentioned in a line of the poet, Jean le Fèvre "Je fis de Macabré la dance," dating from 1376. On the authority of Dufour the artist of the Paris Danse Macabre was a Jehann d'Orleans, the poet Jehann Gerson. It is most probable that Gerson took the old material of the mystery play and reworked it into a form suitable for the explanation of the wall paintings. The internal evidence favors the view that its text is derived from an earlier dramatic form, which may date back into the thirteenth century. The Spanish "Dança general de la muerta" of the fourteenth century is evidently to be traced back to the same source. The Prologue and Epilogue of the various dances of death also favor the view that the Danse Macabre was originally a church festival play, differing only in its special content from other festival plays, such as those of Christmas, the Epiphany, Easter and the Passion. In some special way it must have been associated with the sermons on repentance and fasting. It is probable that the French clergy seeing the deep impression made upon the people by the Danse Macabre play sought to make this more lasting through paintings of its various scenes on the walls of the churches and cloisters. The most recent researches confirm the opinion that the Dance of Death paintings originated in France, in the thirteenth century, developing out of the old mystery play; and that all of the paintings dealing with this theme in Germany, Italy, England and elsewhere were but imitations of the French pictures. Just how and in what form the Dance of Death was carried to other countries is not known. In England a translation of the Paris Danse Macabre appeared as early as 1430. The wall paintings soon had a greater vogue than the play, and gradually replaced it; its last performance took place in France in the fifteenth century. In each country to which the Dance of Death was taken, there occurred a certain original development of the theme, in the choice and number of the scenes depicted and in the content of the accompanying text. In Germany xylographic reproductions of the pictures and text appeared in great numbers in the first half of the fifteenth century, so great was its appeal to the popular fancy.

The Marchant edition of 1485 is a true copy of the old wall paintings of the churchyard of the Innocents. Proof of this is afforded by the costumes which belong to the Paris period of 1422–1430. The secular persons wear the girdled houppelande which was worn in Paris until 1430; they do not wear the long pointed "Schnabel" shoes of the period 1350–1500. The use of the latter was sternly prohibited in Paris about the year 1422. Further, the high hat and short hair of the period 1422–1461 do not appear in these woodcuts. The costumes would therefore belong to the Paris period of 1422–1430; and as we know the actual date of the original painting to be 1424–25, it is definitely proved that the artist of 1485 did not work independently but that he faithfully copied the costumes of the original paintings. The later editions contain all that was in the first, with certain additions. There are seventeen pictures, an introductory one of the "acteur," then fifteen of the Danse Macabre proper, followed by the closing one of the "maistre" (Prediger). The paintings were arranged in ten arcades of the wall of the cloister, in groups consisting of two living and two death figures, framed in painted arches and pillars. In the group of the usurer a third person is introduced represented in the act of taking a loan. The dramatic unity of the whole is pictorially expressed in the linking of the two pairs of living and dead in each division of the picture through the hands of the second figure of death. In its chain formation as well as in its forms of the dead, the French pictures closely follow the old dramatic structure. The order of the personages depicted is as follows: Pope, Kaiser, Cardinal, King, Patriarch, Constable, Archbishop, Knight, Bishop, Nobleman, Abbot, Warden, Astrologer, Bürger, Domherr, Merchant, Carthusian, Sergeant, Mokn, Usurer, Physician, Youth, Advocate, Player, Pastor, Peasant, Franciscan, Child, Sexton and Hermit. Preceding the Maistre is the figure of a dead King, with his crown lying on the ground. This episode is evidently not taken from the old mystery play, but is undoubtedly a reminiscence of the old legend of the three living and the three dead. The clerical and secular personages alternate.

All of the living forms are presented in a quiet pose, and are recognizable chiefly by means of their costumes and general attributes. The physician and the usurer alone show professional activities, being engaged in the tricks of their trade. The dead resemble those of all the old Toten Tanz paintings; they have shrunken fleshy bodies, with apparently naked skulls, which however are not true skulls. In full front view the orbital and nasal cavities are indicated, but in the profile the whole nose is apparent. This suggests the masks worn in the old play. The great belly slit, the emaciation of the bodies, and the transverse separation of the joints are an effort at imitation of the dead body in an advanced state of putrefaction. The joint articulations are not always indicated, rarely in the shoulders or upper extremities, but are usually shown in the other joints. The muscles are represented in detail and in strong relief, thus increasing the impression of the dead body. In strong contrast the dancing and springing movements of the dead are represented in a very lively and lifelike manner. The dead carry no musical instruments as they do in the German Dances of Death, but these were introduced in the later editions of the Danse Macabre. They bear coffin-lids, shovels, arrows and scythes. A distinct change in the motive from that of the old play makes the dead "le mort" become "la mort," death. In the Paris wall-paintings and in all that follow, the conception of "murdering death" holds henceforth. In the old play death in the form of one individual called the different classes and ranks to join in the death dance; in the paintings it became necessary to repeat the death figure with each separate group. This figure of the dead sooner or later became personified as death. In general women were excluded from the Death Dance. This led later to the development of a "La Grant Danse des Femmes," by Martial d'Auvergne in the latter part of the fifteenth century which remained in manuscript form until 1869, when it was first published. In the later editions of the Danse Macabre the woodcuts were divided into single pairs of living and dead, framed in a single arch.

The Physician of the Paris Danse Macabre has the twenty-first place in the chain of the dance, being preceded by such classes of citizens as the merchant, astrologer, sergeant, monk and usurer; he is the tenth from its end. No place of honor is accorded him; on the contrary he is distinctly placed among the lower social orders. From this we may conclude that his social position was not very high. Moreover, he is paired with the Youth (Amoureux), an association which perhaps throws some light upon the nature of his professional activities. He wears a long gown of the houppelande type, having a short cape-like collar, and with a long pocket slit in the side. On his head is a low skull cap, and his moderately long hair is slightly curled at the ends. In his right hand he holds aloft the wide-mouthed flask of urine which he contemplates with a judicial expression raising his left hand with thumb and index finger extended, as if making a sign to the young lover, who raises his hands as if surprised, whether pleasantly or unpleasantly the picture does not reveal. The physician appears to be unconscious of his accompanying death, who, holding a long-handled spade in his right hand, seizes the physician's robe with his left. The second death has his right hand touching the latter's right shoulder, while with his left he has hold of the girdle of the youth. In his answer to death in the accompanying dialogue, the physician mourns that there is no herb or root, or any medicine that has any power to avert death.

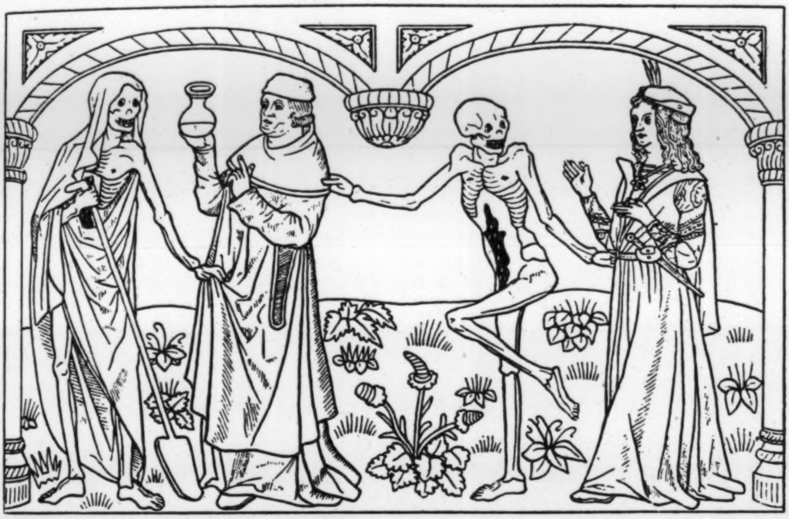


FIG. 3. THE PHYSICIAN AND YOUTH FROM THE DANSE MACABRE IN THE CLOISTER OF THE INNOCENTS, IN PARIS. AFTER LE ROUX DE LINCY AND TISSERAND'S REPRODUCTION OF GUYOT MARCHANT'S FIRST EDITION OF 1485.

Representations of the Danse Macabre appeared in frescoes, tapestries and in sculptures in the churches at Amiens, Angers, Dijon, Rouen, and elsewhere. Most of these have been destroyed, some were never reproduced or published and we possess but slight knowledge concerning them. The Danse Macabre of Kermaria was undoubtedly an imitation of the one in Paris, and is probably second to this in age. The verses accompanying it are identical with those of the latter; the painted arcades are repeated, and the arrangement is the same. Seven pairs of figures are however lacking, including that of the physician; these omissions were undoubtedly due to lack of space. No exact date can be ascribed to this painting but the costumes would indicate that it was made about the middle of the fifteenth century. The forms of the dead show original variations; some have animal heads, and the feet have long pointed shoes resembling the "Schnabelschuhe."

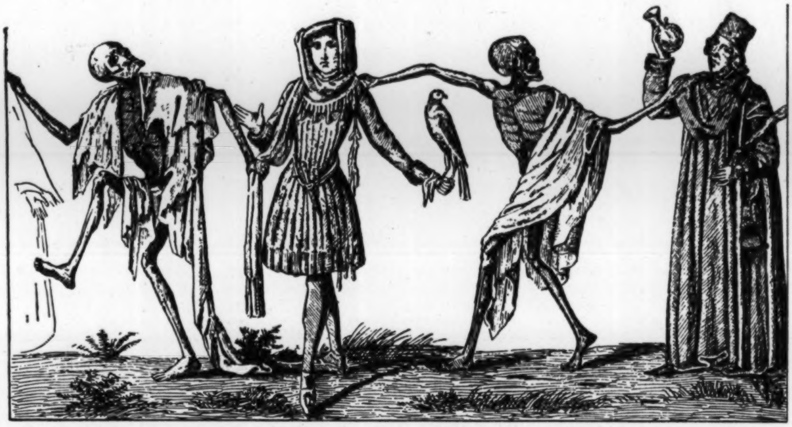


FIG. 4. THE PHYSICIAN AND NOBLEMAN FROM THE LÜBECK TOTENTANZ. AFTER MANTELS.

The third and latest of the great French Danse Macabre wall-paintings is that of the church of La Chaise-Dieu in Auvergne, dating from the second half of the fifteenth century. It differs in many respects from those of Paris and Kermaria. In general the order of personages corresponds with that of Paris; two women are, however, introduced into the groups. The forms of the deaths resemble closely those of Kermaria. The figure supposed to be that of the physician is very doubtful. In the place occupied by him in the Paris dance, between the usurer and the youth, is a man in a short girdled gown, with balloon sleeves, and hat with plumes. He stands in a half back-view position, with the upper part of one side of his face showing, which is transfixed by an arrow shot from the bow of the accompanying death. None of the attributes of the physician are seen in this figure, and it is extremely doubtful if it was intended for the physician. Goette regards the paintings of La Chaise-Dieu as following the original macabre drama more closely than did those of Paris or Kermaria.

Belonging also to the second half of the fifteenth century is the Totentanz in the Marienkirche in Lübeck, to which the date 1463 is usually ascribed, but it is probably somewhat earlier. Originally painted in water colors on wooden tablets it was transferred to canvas and oils in 1707. It bears a very close resemblance to the Paris dance. It is very probable that the painter of the Lübeck dance either had seen the Paris paintings or a painting similar in all respects to the latter, and had worked either from memory or from a sketch of the same. It represents twenty-four personages of the higher social ranks, with their deaths, forming a long chain, interrupted in two places only. This procession is led by a death figure playing a flute. The representation is simple and life-like. The deaths display greater activity in their movements. The Physician of the Lübeck Totentanz wears a loose gown with a hood, and fur cuffs. He has a taller cap, and his hair is long and curled. On his feet are pointed shoes. In his right hand he raises the urine bottle. His left hand is held by the death following after him. He has a youthful face; he is not looking at the urine in the bottle, but straight ahead, with an inquiring anxious air. His attributes are essentially those of the Paris physician, although more living. The personages of the Lübeck dance give the impression of having been drawn from life; they show a simple thoughtful pose.

Of about the same date (1450–60, or later) there was painted a Totentanz in the Marienkirche at Berlin, which undoubtedly owed its inspiration to the Lübeck paintings. It belongs to a cruder period of fresco art; there were no shadows or gradations of color. The poses, faces and gestures have a solemn stereotyped quality. The number of clerical personages is increased over that of Lübeck. It bears evidence to a strong monastic, ascetic influence. The dance is preceded by a preaching monk, at whose feet are two devils, one playing the bagpipes. The clerical and secular personages are divided into two wholly separate groups. The forms of the dead are represented as emaciated mummified bodies, with narrow shoulders and pelvis. No parts of the skeleton are shown; the nasal profiles are preserved, and there are no belly slits. They move in an attitude of earnest solemnity and formality, and with one exception are all turned to one side. Two deaths attend the physician, who stands with his body turned to the left. In his left hand he holds a short necked urine flask which he is examining with a serious air, and raises his right hand from the wrist. He is dressed in the long houpplelande without a girdle, and with collar, cuffs and hem of fur. A high cap sits on his head, and from under it his curly locks fall over the back of his neck. In general his attributes are very similar to those of the physician in the Paris and Lübeck dances of death.

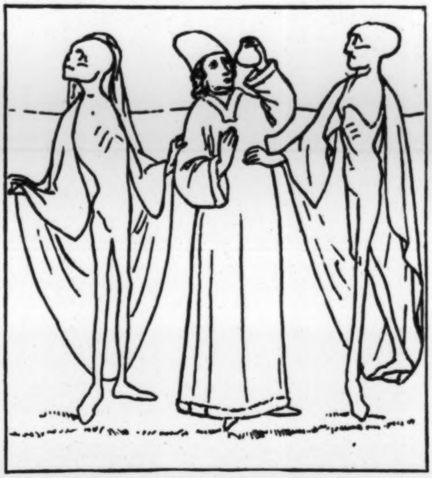


FIG. 5. THE PHYSICIAN OF THE BERLIN TOTENTANZ. AFTER BUCHHEIT.

The Lübecker Totentanz was copied also at Reval, of which only slight remains exist, and at Wismar. There was also a dance of death in the Maria Magdalenakirche in Hamburg, said to date from the monastic period, but no details of it are preserved. The most remarkable and possibly the oldest of the German Totentänze was that of Klingenthal in Klein-Basel. As it was painted on the walls of the inaccessible cloister of a nunnery, it remained concealed and unknown. Even after the convent was dissolved in the sixteenth century, it never became an object of public interest, and was finally destroyed in the middle of the nineteenth century. We owe our knowledge of it to the master baker Büchel of Basel, who in 1768 discovered it and copied it in water colors. Most authorities assign its date to about 1450; others, as Goette, ascribe it to the late fourteenth century, or about 1400. There were thirty-nine social ranks represented in the paintings, the physician being number sixteen, showing a higher social position than that previously accorded him. Seven females are represented. The chain of dancers is broken up into separate pairs, but is still a procession, each pair moving successively towards the charnel house to the left in a kind of polonaise movement. Because of the disconnected grouping the representation loses its original religious-didactic significance. Numerous death figures bear musical instruments. On the step of the charnel house two Deaths stand, one blowing a trumpet, the other a fife and playing a drum. The living show for the greater part a quiet composed attitude, as if shocked or resigned, when seized by the death. Frequently through the dropping of the head and arm they indicate the actual signs of approaching death. Humor and satire are introduced into a number of the groups. The general impression is, however, somewhat monotonous. The dead in part do not dance, but move stiffly, in a half-bent position. The artist is unknown. Several renovations are known to have taken place. Goette believes that the first one occurred in 1439, and would place the date of the original painting as early or even earlier than 1400. He regards the Klingenthal wall pictures as derived from an early German Totentanz play, which was independent of the Danse Macabre. The physician is attired in a richly brocaded cloak worn over the houppelande. On his head is a flat crowned hat. His hair falls just below his ears. From his left hand he has apparently dropped the urine bottle; in his right hand he carries some object, apparently of wood. His costume suggests those of the beginning of the fifteenth century. His face shows a shocked, somewhat pained, expression. The accompanying death, blowing a fife, leads him by his gown.

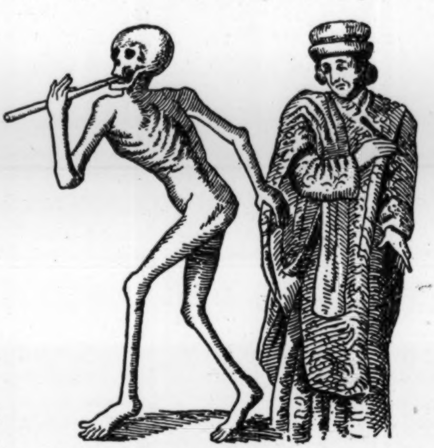


FIG. 6. THE PHYSICIAN OF THE KLINGENTHAL TOTENTANZ. AFTER BÜCHEL.

The most celebrated and widely known of the mediaeval wall-paintings of the Dance of Death was that of Gross Basel. It dates from about 1480, and was preserved for us also in the water color copy made by the same master baker, Büchel, in 1773. For several centuries it was an object of the greatest interest to travelers coming to Basel from all countries; and is repeatedly referred to in contemporary literature as the famous "Tod am Basel." It was renovated or restored a number of times (1568, 1616, 1658 and 1703); in 1773 it was in a badly damaged condition and was repaired in that year. It was painted on the churchyard wall of the Dominican cloister; and was destroyed in 1805 when this wall was torn down by the authorities of Basel. Only small fragments are preserved in the Historical Museum in Basel, and these include portions of the physician. In spite of its great popularity it showed no great originality, and was but an imitation of the one in Klingenthal. Numerous copies exist since 1588–1608 (woodcuts by Fröhlich), 1621 (copper-plates by Merian), 1725–1796 (woodcuts by Mechel), 1744 (copper-plates by Chovin), and the water color copy by Büchel. These copies vary in numerous details, and show many free variations of the original. The Fröhlich and the Mechel copies contain only the Gross Basler verse, while the majority of the woodcuts are taken bodily from Holbein, and are very poor copies at that. The copies of Merian, Chovin and Büchel, while agreeing fairly closely in the number and order of the pictures, show certain deviations in detail that are noteworthy, but which cannot be considered here. The careful comparative study made by Goette of the Klingenthal and Gross Basler dances leads convincingly to the conclusion that the latter is an imitation of the former, made between the time of the original painting and that of the first retouching. There are thirty-nine figures present in both Totentänze. The costumes on the whole indicate the latter part of the fifteenth century, at least before 1493. The artist, or copyist, of the Gross Basel paintings is unknown; but on the left leg of the figure of the youth is a flowering plant on which a bird sits; around the plant is a scroll with the initials W S M G, and below this the initials G M. These do not correspond to any of the known Basler painters of the fifteenth century, or to any of the later restorers of the paintings. The physician of the Gross Basel paintings shows certain variations from the one in the Klingenthal pictures. He is attired in practically the same costume, the houppelande with an over-cloak with wide arm openings, and wears the same brimmed flat cap. The right foot, which alone shows, reveals a broad-toed shoe. His left arm is outstretched, having dropped the urine bottle, which lies broken on the ground. His right arm is raised as if in surprise or alarm. Below his arm is the large arm-hole in which there can be seen some object (knife handle?) in his pocket. His face is thin, ascetic, with eyes half closed, with a tense, worried expression. The death holds his cloak with his right hand; while in his left he holds a fife which he is blowing, and over the bend of his left elbow he carries the long handle of the urine basket in which presum-

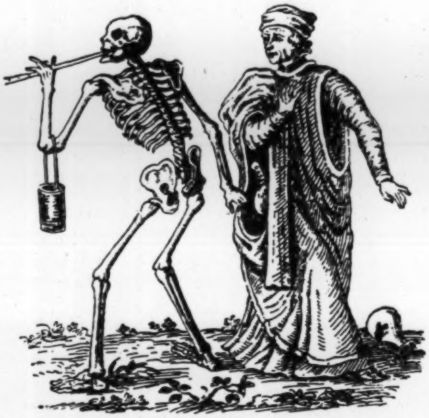


FIG. 7. THE PHYSICIAN OF THE TOTENTANZ IN BASEL. AFTER BÜCHEL.

ably the flask of urine has just been delivered to the physician. The death is remarkable in that it is a true skeleton, but with many inaccurate anatomical details; this is the first appearance of a true skeleton in any of the Totentanz paintings. There is at first sight a superficial resemblance to the skeleton in one of the Vesalius plates of 1543, but this resemblance is purely accidental, chiefly in the position of the skeleton. On closer examination the number of the vertebrae does not coincide, the sacrum is high between the upper portions of the iliac bones; and a detailed comparison of the two shows that the Basler skeleton cannot be an imitation of the Vesalius, but dates from the fifteenth century. It is primarily an imitation of the mummified death attending the physician in the Klingenthal picture; it has the same wrongly placed hand on the right arm, and the same general position. The hands are not skeletonized. The many anatomical inaccuracies show that it belongs to the fifteenth century, before the knowledge of a correctly mounted skeleton had been achieved, and that it bears the marks of a later restoration, probably that carried out by Klauber in 1568, who perhaps altered the bones of the pelvis and legs to accord with the Vesalian anatomy with which he was acquainted. He was not the inventor of the skeleton however; he altered the original only. The verses accompanying the physician are:

Der Tod zum Doctor:

Herr Doctor, b'schaut die Anatomey,
An mir, ob sie recht g'macht sey?
Dann du hast manchen auch hing'richt,
Der eben gleich, wie ich jetzt sieht.

Antwort des Doctors:

Ich hab mit meinem Wasser b'schaun,
Geholfen beide Mann und Frauen;
Wer b'schaut mir nun das Wasser mijn,
Ich musz jetzt mit den Tod dahin.

The "Triomfo della morte" at Clusone belongs to the fifteenth century; and is the oldest dance of death presenting all of the dead in the form of true skeletons. The text is lacking, and the physician is not represented. It shows traces of both French and German influence (Basel). Three figures, especially that of the cook, are evidently derived from the latter. The chief motive is the triumph of death; all ranks and classes offer money and treasure to be spared, and all are denied. This painting is important chiefly in showing how quickly the fame and influence of the "Tod von Basel" had spread.

Between 1515–1520 a Totentanz was painted by Niclaus Manuel, called Deutsch, on the inside of the garden wall of the Dominican cloister in Berne, which also became widely known and justly celebrated for the striking effect of its presentation. It was destroyed in 1660, but is preserved to us in two water color copies; the most recent of which by Stettler has been reproduced in lithographs. It has been generally regarded as an imitation of the Gross Basler paintings; but it shows almost as marked an influence of the Paris Danse Macabre and the figures of the Books of Hours. Only one figure, that of the cook, is taken directly from the Gross Basler dance. Most of the figures were copied or imitated in an original manner from those of the Paris Danse Macabre. Each group consists of two pairs of living and dead, framed in an arcade, with a painted landscape, representing local Swiss scenes, for background. The illustrations show a certain independence of the text; the old conception of the dance is aban-

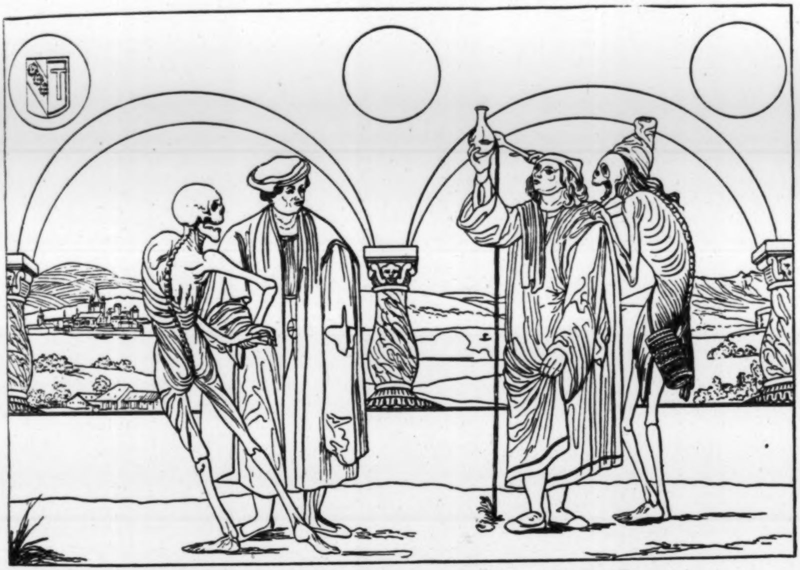


FIG. 8. THE PHYSICIAN OF THE TOTENTANZ IN BERNE. (AFTER GOETTE.)

doned in part, in that the individual pairs of figures pass before the onlooker, busied only with their own dialogue. The clerical and secular personages are separated into two rows. The spirit of the Reformation shows clearly in Manuel's work, and is presented with a certain degree of brutality, in the scornful and biting satire shown towards the clergy and ruling classes. He betrays the attitude of his time, which manifested itself in passionate social and religious conflicts. His work produces a strong intellectual effect through the plausible and impressive human types presented. The Deaths become again the "mähender und schiessende Tod" of the French Danse Macabre; they attack the living with murderous and brutal force, even strangling the theologian. They lay violent hands upon the clerical representatives in particular. After the original French manner, the Physician is again represented busied in the occupation of his profession, the examination of urine. Death, with a horrible grin, comes up behind him and breaks the urine bottle, spilling its contents on the ground. The physician has a coarse unpleasant face, that of a quack rather than of an intelligent person. He wears a contemporary costume, a loose gown, not reaching his ankles, broad shoes, flat cap, and curly hair reaching to his shoulders. The death wears a tall shapeless cap, and carries the basket for the urine bottle (or is it a drum?) on a long handle around his waist. If this object is a drum, he is using the drumstick to break the bottle. We see here a return to the French and early German representation of the physician busied in his professional activity, which had been abandoned in both the Klein and Gross Basler paintings, in which the physician is represented as having dropped the flask. In his treatment of the subject

Manuel sacrificed the harmonious development of a great art idea to the presentation of the social and religious-political atmosphere of his times. This led him into inartistic excesses, even into certain absurdities of composition, as in the case of the death represented in a creeping posture with an hour-glass placed on the middle of his back. The Bernese Dance of Death is the last one of the predecessors of the great Holbein masterpiece. It closed the epoch of the medieval wall paintings and marked the transition to a new period. It fulfilled the criteria of great monumental folk art.

The verses and pictures of the Paris Danse Macabre were taken to England as early as 1430; and in the reign of Henry VI, a Dance of Death was painted on the north wall of the old Paul's churchyard in London, which was torn down in 1559. The English verses were written by the monk, John Lydgate; no copy of the painting is preserved, but Lydgate's text was published in London, in 1554, from which edition the verses relating to the physician are taken:

THE DAUNCE OF MACHABREE,
LONDON, 1554.

Death speaketh to the physicien.

Maister of phisike which on your dryne,
So looke and gaze and stare agaynst the sunne,
for all your craft and study of medicine,
All the practise and science that ye cunne,
Your life course so farre forth is yrunne,
Agein my might your craft may not endure,
for al the gold that thereby ye haue wonne,
Good leche is he that himself can cure.

The Physicien maketh answer.

Full long agon that I unto phisike,
Set my wit and eke my diligence,
In speculacitie and also in practise,
To geat a name through mine excellence,
To fynd out agaynst pestilence,
Preseruatites to staunche it and to fine,
But I dare shortly in sentence,
Say that agaynst death is worth no medicine.

Representations of the Dance of Death existed also in the Tower, in the Bishop's Palace at Croydon, and at Salisbury, Stratford, Wortley-Hale and at Hexham. Four panels painted on wood still exist of the last named. Practically nothing is known of the details of the others. During the sixteenth, seventeenth and eighteenth centuries there were created many other wall-paintings of the Totentanz, in Annaberg, Hamburg, Kienzheim, Chur, Fussen, Luzern, Constance, Freiburg, Kuckucksbad in Bohemia, Erfurt and Dresden. In the year 1824 the paintings in the old Dominican church in Strassburg were discovered under the coating of whitewash with which they had been long covered. They were destroyed in the later fire which consumed the church. They dated from the end of the fifteenth century. Very little is known of the majority of these Dances of Death, either of their subject matter, mode of treatment, or their artistic value. Between 1626 and 1635 Kaspar Meglinger painted fifty-six dance of death pictures on the Mühlenbrücke at Luzern. These paintings are uninspired, and have little artistic worth. There is no physician represented, medicine is represented by the Apothecary, who holds the thirtieth place, and by the Barber-Surgeon, who is given the thirty-sixth place. This is the only representation of bleeding that the author has been able to find in the Dance of Death literature. One death holds aloft a mirror behind the barber-surgeon; a second death holds the bleeding basin. Two children attend with bandages. The patient is in the costume of the early seventeenth century. He sits in a chair, extending his left arm, supported by a cane, and held by the barber, who is in the act of bleeding him. Some of the Luzern groups suggest Holbein's influence but they show a total lack of artistic inspiration and imagination.

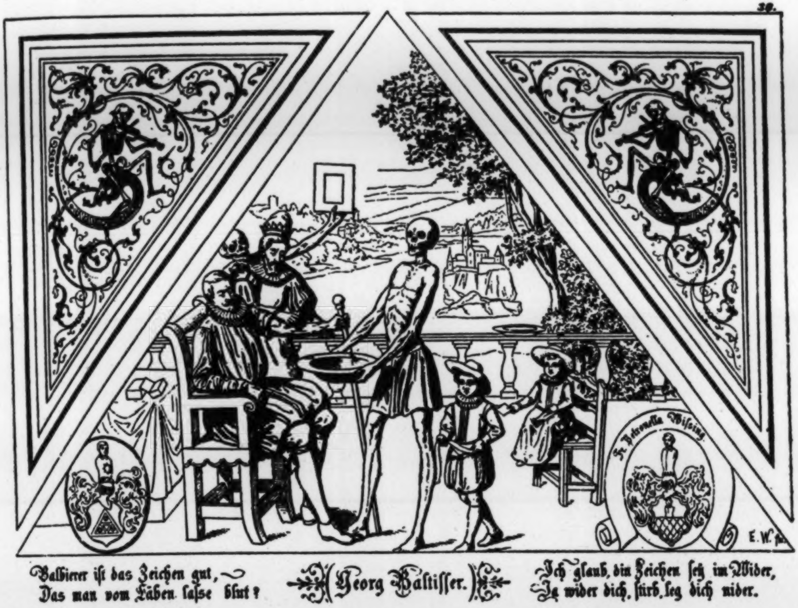
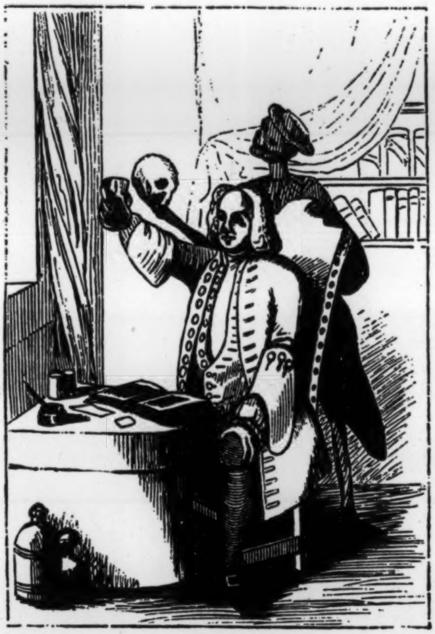

30.
Fr. Petronella Wiſsing
E.W. fe.
Balbierer iſt das Zeichen gut,
Das man vom Fäden laſse blut?
Georg Baltiſſer.
Ich glaub, din Zeichen ſey im Wider,
Ja wider dich, ſtirb, leg dich nider.

FIG. 9. THE BARBER-SURGEON OF THE TOTENTANZ IN LUZERN. (AFTER EGLIN'S LITHOGRAPH OF THE ORIGINAL.)

The last wall painting of the Dance of Death was that of Erfurt, painted in 1736 in the old Augustina cloister by Jakob Samuel Beck, with contributions from a number of other artists. It consisted of fifty-six oil paintings, which were destroyed by fire in 1872. Twenty years before, pen and ink drawings had been made of them by Kruspe. The cycle was led by death playing the oboe. The twelfth position was held by Death and the Physician. The latter seated in a chair before a table in his office, dressed in knee-breeches, frock coat with broad cuffs, long waistcoat, low buckled shoes and wig, holds aloft the urine bottle which he regards appraisingly, Death, with a small flat-crowned hat on his head stands behind the chair, with head cocked on one side and holding a human skull. The general impression of this cycle, according to contemporary accounts was a fresh and living one, because of the fine and vital characteristics of the personages. Death appears here always in the background suddenly surprising the living in the midst of their activities; lurking unsuspected behind them or attaching himself to their side. Traces of Holbein influence appear in the composition, but the conception is simple and naive; the moment of moralization outweighs the humanistic and ironic.

The great wall paintings of the Dance of Death have passed away; only unimportant fragments remain, and their memory comes down to us only in the reproductions so fortunately preserved. They represented a monumental art—a great folk-cultural idea—an expression of the awakening spirit of democracy in the dying Middle Ages, presented in the form of social and religious satire, and are to be interpreted as the healthy reaction of the people against the narrowness of the church and its unnatural asceticism. From all the ranks and classes of men represented in these paintings we have chosen the physician as affording a key to their meaning. In all of these wall-paintings he is throughout, with one exception, depicted as the "urine-gazer." This was the favorite popular conception of the physician in the fifteenth, sixteenth and seventeenth centuries and continued even into the eighteenth. The examination of the urine was a direct legacy from Arabic medicine. Diagnosis, according to the latter, rested almost wholly upon the examination of the pulse and of the urine; hence the teaching of the theory of the pulse and of "urine-gazing" comprised almost the whole of the medieval practice of medicine. These two things constituted the two great professional "poses," or attributes of the medieval physician; and were maintained for several centuries. In the art of the times the physician is represented either in the act of taking the pulse, or in the contemplation of the urine flask. Particularly did the latter pose become a favorite with the genre artists of the Netherlands during the sixteenth and seventeenth centuries; and many charming pictures of this period by van Ostade, Teniers, Terborch, Dou and others attest the popularity of this conception of the physician's methods of practice. That the principles of pulse-taking and urine-gazing were so easily learned, the diagnostic conclusions based upon their characters so readily arrived at, and so fully under the control of the physician, who could interpret his findings as he willed, and in case he found nothing, could easily master the situation, made of the urine examination especially a vehicle for the development of quackery and deceit in their gravest forms. In fact, such methods were actually taught to the physician. In the early fourteenth century, Villanovanus of Montpellier, actually advised the following: "If you find nothing in the examination of the urine, then say there is an obstruction of the liver; should the patient say he has a headache, then you must say, it arises from the liver. But especially use the word obstruction, because



Der Tod zum Arzt.

FIG. 10. THE PHYSICIAN OF THE TOTENTANZ IN ERFURT. AFTER KRUSPE.

they will not understand its meaning, and much depends on their not knowing what one is talking about." When such advice and practices were taught in the centers of medical learning of the time, what could be expected of the actual professional practice? It of course degenerated into the grossest forms of quackery. Further, the art of urine examination became tinctured with mysticism and astrologic practices. Moreover, the urine-gazer played a definite, though shady part, in the sexual life and habits of the times. In the older Danse Macabre he is usually associated with a youth (amoureux) who appears to wait upon his decision as to what the urine might show. In the art of the Netherlands this relationship is more clearly brought out. The urine examination was made to determine chastity or pregnancy, and such a diagnostic rôle could only aid in making the medieval practitioner's reputation still more questionable. Is it any wonder, then, that in this great folk art form, representing as it does all classes and ranks of the society of the day, the physician is presented with biting, satire and irony, as the urine-gazer, who with his examinations has (said to have) cured so many men and women, but is himself helpless against death! In the older pictures, his social position is decidedly that of an inferior person; towards the end of the period, it had risen, but there is no escaping the conclusion that the satire of both the pictures and the text were aimed at the elements of quackery which the popular mind of the day associated with the professional practices of the physician.

(*To be Continued*)

STEPHEN GIRARD AND THE GREAT EPIDEMIC OF YELLOW FEVER IN 1793

AND THE LESSER OUTBREAKS IN 1787, 1798, 1802 AND 1820*

By HOBART AMORY HARE, M.D.

PHILADELPHIA, PA.

As one of those whose privilege and duty it is to see that in these later days the generous gifts of Stephen Girard are properly administered, it may not be out of place for me to bring before this Section of the College of Physicians a brief account of what he did for the City of Philadelphia and individuals resident therein, with particular reference to his conduct during the dreadful epidemic of yellow fever which swept this city in September and October, 1793 and the milder ones 1797, 1798, 1802 and 1820.

Girard, as you all know, saw to it that a great educational institution should be founded for poor white male orphans, little dreaming that at the present time it would care for nearly if not quite 2000 boys from six to eighteen years of age. Possibly only a few of my readers know that he directed in his will that Girard College should be placed on the square bounded by 11th Street on the east, 12th Street on the west, Chestnut Street on the south, and Market Street on the north, nor do they know that this block of land is still owned by the estate of Stephen Girard. Fortunately. In a codicil to his will, very shortly before his death, he directed that the College be placed on the so-called Peel Hall Farm which he owned and upon which the institution now stands. Furthermore, it is not generally known that today the lighting and policing of Deleware Avenue from Vine to South Streets is paid for from funds set aside by Girard for this purpose in his will.

It is not to be forgotten that Stephen Girard was not reared in the lap of luxury, that for many years in early manhood he struggled against adversity, that in his more prosperous days he frequently lost large sums by the loss of his ships trading to foreign ports because of wars and the dangers of the sea, and for all these reasons he might very readily have felt that it would be wise for him to husband his resources during his lifetime lest he die poor. His post-mortem generosity, if I may use such a term, has already been referred to.

Let me refer to two outstanding facts in connection with his activities in life. The first lies in the fact that in 1812 when the United States Government was nearly bankrupt and its offer of $12,000,000 bonds could not be sold, it was Stephen Girard, cautious and careful as he was, who nevertheless subscribed to $5,000,000 and saved the day.

And now I come to what may be called the real purpose of this communication, a consideration of his conduct during the great epidemic of Yellow Fever when those who could fled the city, when Washington went to Mt. Vernon and it seemed that the entire city would be wiped out. Before speaking of Girard's extraordinary heroism, let me describe the conditions present, and in doing so I shall quote freely from a little book which in a few months passed through four editions. It was written by Matthew Carey, a resident of the city at the time of the plague: "A short account of the Malignant Fever, lately prevalent in Philadelphia: with a statement of the Proceedings that took place on the subject in different parts of the United States. To which are added accounts of the Plague in London and Marseilles; and a list of the dead, from August 1, to the middle of December, 1793. Fourth Edition Improved. Philadelphia. Printed by the Author, January 16, 1794."

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* Read before the College of Physicians of Philadelphia.

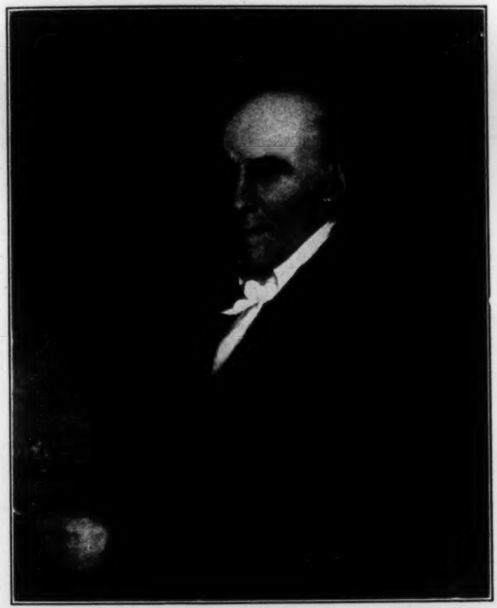


FIG. 1. STEPHEN GIRARD. (FROM POSTHUMOUS PORTRAIT BY BASS OTIS (1832). MASONIC TEMPLE, PHILADELPHIA.)

First let me remind you that the infection came with some refugees from Cape François who arrived by ship. Their desperate state from the plague appealed to the citizens, who promptly collected $12,000 for their relief, little dreaming that in a short time the disease would in many instances destroy the givers and their families and that no effort was of any avail in saving life. To quote Carey:

> The symptoms which characterized the first stage of the fever, were, in the greatest number of cases, after a chilly fit of some duration, a quick, tense pulse—hot skin—pain in the head, back, and limbs—flushed countenance—inflamed eye—moist tongue—oppression and sense of soreness at the stomach, especially upon pressure—frequent sick qualms, and retchings to vomit, without discharging anything, except the contents last taken into the stomach—costiveness, etc. And when stools were procured, the first generally showed a "defect of bile" or an obstruction to its entrance into the intestines. But brisk purges generally altered this appearance.

These symptoms generally continued

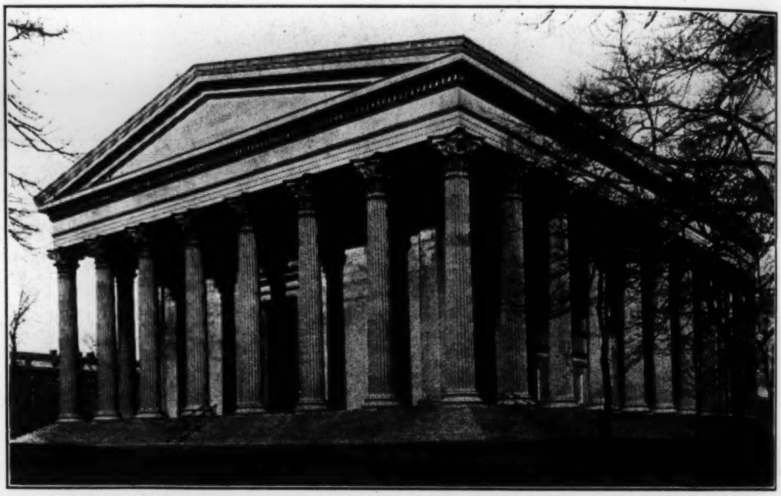


FIG. 2. MAIN BUILDING, GIRARD COLLEGE. (FROM PHOTOGRAPH BY HOWLAND.)

with more or less violence from one to three, four, or even five days; and then gradually abating, left the patient free from every complaint, except general debility. On the febrile symptoms suddenly subsiding, they were immediately succeeded by a yellow tinge in the opaque cornea, or whites of the eyes—an increased oppression at the praecordia—a constant puking of every thing taken into the stomach, with much straining, accompanied with a hoarse hollow noise.

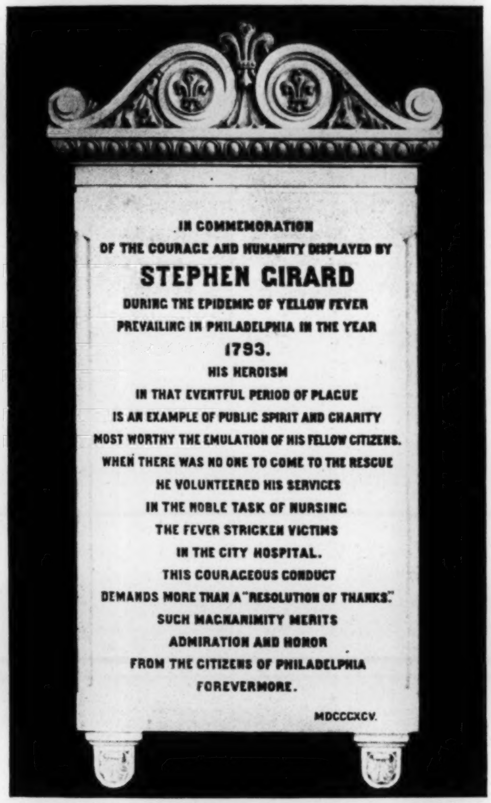
If these symptoms were not soon relieved, a vomiting of matter, resembling coffee grounds in colour and consistence, commonly called the black vomit, sometimes accompanied with, or succeeded by haemorrhages from the nose, fauces, gums, and other parts of the body—a yellowish purple colour, and putrescent appearance of the whole body, hiccup agitations, deep and distressed sighing, comatose delirium, and finally death. When the disease proved fatal, it was generally between the fifth and eighth days.

This was the most usual progress of this formidable disease, through its several stages. There were, however, very considerable variations in the symptoms, as well as in the duration of its different stages, according to the constitution and temperament of the patient, the state of the weather, the manner of treatment, etc.

In some cases, signs of putrescency appeared at the beginning, or before the end of the third day. In these, the black vomiting, which was generally a mortal symptom, and universal yellowness, appeared early. In these cases, also, a low delirium, and great prostration of strength, were constant symptoms, and coma came on very speedily.

In some, the symptoms inclined more to the nervous than the inflammatory type. In these, the jaundice colour of the eye and skin, and the black vomiting, were more rare. But in the majority of cases, particularly after the nights became sensibly cooler, all the symptoms indicated violent irritation and inflammatory diathesis. In these cases the skin was always dry, and the remissions very obscure.

The febrile symptoms, however, as has been already observed, either gave way on the third, fourth, or fifth day, and then the patient recovered; or they were soon after succeeded by a different, but much more dangerous train of symptoms, by debility, low pulse, cold skin, (which assumed a tawny colour, mixed with purple) black vomiting, haemorrhages, hiccup, anxiety, restlessness, coma, etc. Many, who survived the eighth day, though apparently out of danger, died suddenly in consequence of an haemorrhage.



IN COMMEMORATION
OF THE COURAGE AND HUMANITY DISPLAYED BY
STEPHEN GIRARD
DURING THE EPIDEMIC OF YELLOW FEVER
PREVAILING IN PHILADELPHIA IN THE YEAR
1793.
HIS HEROISM
IN THAT EVENTFUL PERIOD OF PLAGUE
IS AN EXAMPLE OF PUBLIC SPIRIT AND CHARITY
MOST WORTHY THE EMULATION OF HIS FELLOW CITIZENS.
WHEN THERE WAS NO ONE TO COME TO THE RESCUE
HE VOLUNTEERED HIS SERVICES
IN THE NOBLE TASK OF NURSING
THE FEVER STRICKEN VICTIMS
IN THE CITY HOSPITAL.
THIS COURAGEOUS CONDUCT
DEMANDS MORE THAN A "RESOLUTION OF THANKS."
SUCH MAGNANIMITY MERITS
ADMIRATION AND HONOR
FROM THE CITIZENS OF PHILADELPHIA
FOREVERMORE.
MDCCCXCV.

FIG. 3. MEMORIAL TABLET. CHAPEL, GIRARD COLLEGE.

This disorder having been new to nearly all our physicians, it is not surprising, although it has been exceedingly fatal, that there arose such a discordance of sentiment on the proper mode of treatment, and even with respect to its name. Dr. Rush has acknowledged, with a candour that does him honour, that in the commencement, he so far mistook the nature of the disorder, that in his early essays, having depended on gentle purges of salts to purify the bowels of his patients, they all died. He then tried the mode of treatment adopted in the West Indies, viz. bark, wine, laudanum, and the cold bath, and failed in three cases out of four. Afterwards he had recourse to strong purges of calomel and jalap, and to bleeding, which he found attended with singular success.

The honour of the first essay of mercury in this disorder, is by many ascribed to Dr. Hodge and Dr. Carson, who are said to have employed it a week before Dr. Rush. On this point I cannot pretend to decide. But whoever was the first to introduce it, one thing is certain, that its efficacy was great, and rescued many from death. I have known, however, some persons, who, I have every reason to believe, fell sacrifices to the great reputation this medicine acquired; for in several cases it was administered to persons of a previous lax habit, and brought on a speedy dissolution.

I am credibly informed that the demand for purges of calomel and jalap was so great, that some of the apothecaries could not mix up every dose in detail; but mixed a large quantity of each, in the ordered proportions; and afterwards divided it into doses; by which means, it often happened that one patient had a much larger portion of calomel, and another of jalap, than was intended by the doctors. The fatal consequences of this may be easily conceived.

An intelligent citizen, who has highly distinguished himself by his attention to the sick, says, that he found the disorder generally come on with costiveness; and unless that was removed within the first twelve hours, he hardly knew any person to recover; on the contrary, he says, as few died, on whom the cathartics operated within that time.

The efficacy of bleeding, in all cases not attended with putridity, was great. The quantity of blood taken was in many instances astonishing. Dr. Griffits was bled seven times in five days, and appears to ascribe his recovery principally to that operation. Dr. Mease, in five days, lost seventy-two ounces of blood, by which he was recovered when at the lowest stage of the disorder. Many others were bled still more, and are now as well as ever they were.

Dr. Rush and Dr. Wistar have spoken very favorably of the salutary effects of cold air, and cool drinks, in this disorder. The latter says, that he found more benefit from cold air, than from any other remedy. He lay delirious, and in severe pain, between a window and door, the former of which was open. The wind suddenly changed, and blew full upon him, cold and raw. Its effects were so grateful, that he soon recovered from his delirium—his pain left him—in an hour he become perfectly reasonable—and his fever abated.

A respectable citizen who had the fever himself, and likewise watched its effects on eleven of his family, who recovered from it, has informed me, that a removal of the sick from a close, warm room to one a few degrees cooler, which practice he employed several times daily, produced a most extraordinary and favourable change in their appearance, in their pulse, and in their spirits . . .

The consternation of the people of Philadelphia at this period was carried beyond all bounds. Dismay and affright were visible in almost every person's countenance. Most of those who could by any means make it convenient, fled from the city. Of those who remained, many shut themselves up in their houses, and were afraid to walk the streets. The smoke of tobacco being regarded as a preventative, many persons, even women and small boys, had segars almost constantly in their mouths. Others placing full confidence in garlic, chewed it almost the whole day; some kept it in their pockets and shoes. Many were afraid to allow the barbers or hair-dressers to come near them, as instances had occurred of some of them having shaved the dead—and many having engaged as bleeders. Some, who carried their caution pretty far, bought lancets for themselves, not daring to be bled with the lancets of the bleeders.

Many houses were hardly a moment in the day free from the smell of gunpowder, burned tobacco, nitre, sprinkled vinegar, etc. Some of the churches were almost deserted, and others wholly closed. The coffee house was shut up, as was the city library, and most of the public offices—three out of the four daily papers were discontinued, as were some of the others. Many were almost incessantly employed in purifying, scour-

> ing, and whitewashing their rooms. Those who ventured abroad, had handkerchiefs or sponges impregnated with vinegar or camphor at their noses, or smelling-bottles full of the thieves' vinegar. Others carried pieces of tarred rope in their hands or pockets, or camphor bags tied round their necks. The corpses of the most respectable citizens, even of those who did not die of the epidemic, were carried to the grave, on the shafts of a chair, the horses driven by a negro, unattended by a friend or relation, and without any sort of ceremony. People hastily shifted their course at the sight of a hearse coming towards them. Many never walked on the foot path, but went into the middle of the streets, to avoid being infected in passing by houses wherein people had died. Acquaintances and friends avoided each other in the streets, and only signified their regard by a cold nod. The old custom of shaking hands fell into such general disuse, that many shrunk back with affright at even the offer of the hand. A person with a crepe, or any appearance of mourning, was shunned like a viper. And many valued themselves highly on the skill and address with which they got to windward of every person whom they met.

There is not space to describe the heart-rending pictures Carey presents, but it is interesting to note that members of the medical profession stood faithfully to their duties and in five or six weeks no less than ten physicians died of yellow-fever with many medical student assistants. Their names are Hutchinson, Morris, Linn, Pennington, Dodds Johnson, Glentworth, Phile, Graham and Green. Several of these were Fellows of this College.

These facts are presented in order to show that Girard was well informed of what he, the richest citizen of this country, with great financial burdens, was courageous enough to do. Here again let me quote from Careys' brochure:

> At the meeting on Sept. 15th, a circumstance occurred to which the most glowing pencil could hardly do justice. Stephen Girard, a wealthy merchant, a native of France, and one of the members of the committee, touched with the wretched situation of the sufferers at Bushhill, voluntarily and unexpectedly offered himself as a manager to superintend that hospital. The surprise and satisfaction, excited by this extraordinary effort of humanity, can be better conceived than expressed. Peter Helm, a native of Pennsylvania, also a member, actuated by the like benevolent motives, offered his services in the same department. Their offers were accepted; and the same afternoon they entered on the execution of their dangerous and praiseworthy office.
>
> To form a just estimate of the value of the offer of these men, it is necessary to take into full consideration the general consternation, which at that period pervaded every quarter of the city, and which made attendance on the sick regarded as little less than a certain sacrifice. Uninfluenced by any reflexions of this kind, without any possible inducement but the purest motives of humanity, they came forward, and offered themselves as the forlorn hope of the committee. I trust that the gratitude of their fellow citizens will remain as long as the memory of their beneficent conduct, which I hope will not die with the present generation.
>
> On the 16th, the managers of Bushhill, after personal inspection of the state of affairs there, made report of its situation, which was truly deplorable. It exhibited as wretched a picture of human misery as ever existed. A profligate, abandoned set of nurses and attendants (hardly any of good character could at that time be procured,) rioted on the provisions and comforts prepared for the sick, who (unless at the hours when the doctors

attended) were left almost entirely destitute of every assistance. The sick, the dying, and the dead were indiscriminately mingled together. The ordure and other evacuations of the sick, were allowed to remain in the most offensive state imaginable. Not the smallest appearance of order or regularity existed. It was, in fact, a great human slaughter house, where numerous victims were immolated at the altar of riot and intemperance. No wonder, then, that a general dread of the place prevailed through the city, and that a removal to it was considered as the seal of death. In consequence, there were various instances of sick persons locking their rooms, and resisting every attempt to carry them away. At length, the poor were so much afraid of being sent to Bushhill, that they would not acknowledge their illness, until it was no longer possible to conceal it. For it is to be observed, that the fear of the contagion was so prevalent, that as soon as any one was taken ill, an alarm was spread among the neighbours, and every effort was used to have the sick person hurried off to Bushhill, to avoid spreading the disorder. The cases of poor people forced in this way to that hospital, though laboring under only common colds, and common fall fevers, were numerous and afflicting. There were not wanting instances of persons, only slightly ill, being sent to Bushhill, by their panic-struck neighbours, and embracing the first opportunity of running back to Philadelphia.

The regulations adopted at Bushhill, were as follows:

One of the rooms in the mansion house (which contains fourteen, besides three large entres) was allotted to the matron, and an assistant under her—eleven rooms and two entries to the sick. Those who were in a very low state were in one room —and one was appointed for the dying. The men and women were kept in different rooms, and attended by nurses of their own sexes. Every sick person was furnished with a bedstead, clean sheet, pillow, two or three blankets, porringer, plate, spoon, and clean linen, when necessary. In the mansion house were one hundred and forty bedsteads. The new frame house, built by the committee, when it was found that the old buildings were inadequate to contain the patients commodiously, is sixty feet front, and eighteen feet deep, with three rooms on the ground floor; one of which was for the head nurses of that house, the two others for the sick. Each of these two last contained seventeen bedsteads. The loft, designed for the convalescents, was calculated to contain forty.

The barn is a large, commodious stone building, divided into three apartments; one occupied by the resident doctors and apothecary; one, which contained forty bedsteads, by the men convalescents—and the other by the women convalescents, which contained fifty-seven.

At some distance from the west of the hospital, was erected a frame building to store the coffins, and deposit the dead until they were sent to a place of interment.

Besides the nurses employed in the house, there were two cooks, four laborers, and three washer-women, constantly employed for the use of the hospital.

The sick were visited twice a day by two physicians, Dr. Deveze and Dr. Benjamin Duffield, whose prescriptions were executed by three resident physicians and the apothecary.

One of the resident doctors was charged with the distribution of the victuals for the sick. At eleven o'clock, he gave them broth with rice, bread, boiled beef, veal, mutton, and chicken, with cream of rice to those whose stomachs would not bear stronger nourishment. Their second meal was at six o'clock, when they had broth, rice, boiled prunes, with cream of rice. The sick drank at their meals porter, or claret and water. Their constant drink between meals was centaury tea, and boiled lemonade.

These regulations, the order and regularity introduced, and the care and tenderness with which the patients were treated, soon established the character of the hospital; and in the course of a week or two, numbers of sick people, who had not at home proper persons to nurse them, applied to be sent to Bushhill. Indeed, in the end, so many people, who were afflicted with other disorders, procured admittance there, that it became necessary to pass a resolve, that before an order of admission should be granted, a certificate must be produced from a physician, that the patient laboured under the malignant fever; for had all the applicants been received, this hospital, provided for an extraordinary occasion, would have been filled with patients whose cases entitled them to a reception in the Pennsylvania Hospital.

The number of persons received into Bushhill, from the 16th of September to this time, is about one thousand; of whom nearly five hundred are dead; there are now (Nov. 30) in the house, about twenty sick, and fifty convalescents. Of the latter class, there have been dismissed about four hundred and thirty.

The reason why so large a proportion died of those received, is, that in a variety of cases, the early fears of that hospital had got such firm possession of the minds of some, and others were so much actuated by a foolish pride, that they would never consent to be removed till they were past recovery. And in consequence of this, there were many instances of persons dying in the cart on the road to the hospital. I speak within bounds, when I say that at least a third of the whole number of those received, did not survive their entrance into the hospital two days. Were it not for the operation of these two motives, the number of the dead in the city and in the hospital would have been much lessened; for many a man, whose nice feelings made him spurn at the idea of a removal to the hospital perished in the city for want of that comfortable assistance he would have had at Bushhill.

Before I conclude this chapter, let me add, that the perseverance of the managers of that hospital has been equally meritorious with their original beneficence. During the whole calamity to this time, they have attended uninterruptedly, for six, seven, or eight hours a day, renouncing almost every care of private affairs. They have had a laborious tour of duty to perform. Stephen Girard, whose office was in the interior part of the hospital, has had to encourage and comfort the sick—to hand them necessaries and medicines—to wipe the sweat off their brows—and to perform many disgusting offices of kindness for them, which nothing could render tolerable, but the exalted motives that impelled him to this heroic conduct. Peter Helm, his worthy coadjutor, displayed, in his department, equal exertions, to promote the common good.

Reference has been made to the treatment instituted by medical men. That any one survived is astonishing, and one wonders whether a hundred and fifty years from now all of our efforts will be regarded in the same light. It is worthy of note that Girard denounced the conduct of our predecessors in unmeasured terms, terms only justified by the agony of the time.

It is evident, however, like all human beings, Stephen Girard felt the stress and strain on his nerves which were all on edge. It may interest the fellows of this College that he used the following words in writing to one of his correspondents in Baltimore in 1797 during one of the later epidemics of yellow fever: "Our city and its inhabitants are in a deplorable condition. Our Board of Health, our College of Physicians, or rather jackasses, not to mention our governor's proclamation which does not even show the common sense of a half civilized nation, have created an unparalleled state of alarm. For my part, I assure you that I feel the greatest fear lest most disastrous consequence may follow."

It is interesting to note, by the way, that Carey insists that an individual was not rendered immune by one attack.

But in all human woes there occur elements of humor, and Carey writes:

> A drunken sailor lay in the street, in the northern liberties, for a few hours asleep, and was supposed by the neighbours to be dead with the disorder; but they were too much afraid, to make personal examination. They sent to the committee at the city hall for a cart and a coffin. The carter took the man by the heels, and was going to put him into the coffin, handling him roughly. He awoke, and damning his eyes, asked him what he was about? The carter let him drop in a fright, and ran off as if a ghost was at his heels.
>
> A lunatic, who had the malignant fever, was advised by his neighbours, to go to Bushhill. He consented, and got into the cart; but soon changing his mind, he slipt out at the end, unknown to the carter, who, after a while, missing him, and seeing him at a distance running away, turned his horse about, and trotted hard after him. The other doubled his pace; and the carter whipped his horse to a gallop; but the man turned a corner, and hid himself in a house, leaving the mortified carter to return, and deliver an account of his ludicrous adventure.
>
> Several instances occurred of the carters on their arrival at Bushhill, and proceeding to deliver up their charge, finding, to their amazement, the carts empty.
>
> A woman, whose husband died, refused to have him buried in a coffin provided for her by one of her friends, as too paltry and mean. She bought an elegant and costly one—and had the other laid by in the yard. In a week, she was herself a corpse—and was buried in the very coffin she had so much despised.

Before closing this paper it may not be out of place to state that a very extraordinary complete record of the epidemic of yellow fever is in the archives of Girard College in the papers of Stephen Girard, which have been very carefully kept together. The material is so rich that it could readily be utilized in the preparation of a book on this interesting subject.

Stephen Girard was a man who attended to everything with what he called system and these papers show the condition of affairs at the Bushhill Hospital before he took charge and immediately after he took charge.

At first, patients with yellow fever, or those suspected of having yellow fever, were removed by every possible means by friend and foe and literally dumped into this emergency hospital.

In the papers to which I have referred there are blanks which were prepared by Stephen Girard in the form of a checkbook, each blank having a stub. On what might be called the check was a request for the admission of a given patient and this, of course, was also placed on the stub. After admission the date and ward in which the patient was placed was also entered on the check and stub, and on discharge, or on death, a similar entry was made.

One of the most interesting papers is as follows:

"Observations Upon the Origin of Malignant, Bilious or Yellow Fever in Philadelphia and the Means of Preventing It," addressed to the citizens of Philadelphia by Benjamin Rush, Philadelphia, 1799.

It is interesting to note that Rush presents in the first sentence of his communication his complete failure to grasp the proposition involved, for he says:

> Having labored for nearly six years to no purpose to persuade the citizens of Philadelphia that yellow fever is of domestic origin, I had concluded to desist from all further attempts to produce conviction upon this subject, but a retrospect of the scenes of distress that I have witnessed of that terrible disease, and the dread of seeing them speedily renewed, with aggravated circumstances, have induced me to make one more effort to prevent them, by pointing out their causes and remedies.

He then goes on to state that he anticipates a renewal of the calumnies to which his opinion of the origin of the annual calamity has exposed him, he denies that yellow fever could be imported and expresses the belief that the noxious matter which produces the yellow fever exists independently of smell and is probably not formed till after the process of fermentation is ended which evolves the fetor from putrifying animal and vegetable substances, and this fetor like the rattle of a snake seems to have been intended to give us notice of our danger and to move or flee from the filth which emits it.

Another interesting communication is entitled "A Narrative of the Proceedings of the Black People during the late Awful Calamity in Philadelphia in the year 1793 and a Refutation of some Censures Thrown upon them in some late Publications, by A. J. and R. A." Needless to say that the text of this brochure deals with the courage and ability which the negro population manifested.

There is also among these papers a copy of the Proceedings of the College of Physicians of Philadelphia relative to the prevention of the introduction and spreading of contagious diseases, with special reference to yellow fever, under date of 1798, which while giving the different opinions that exist as to the method of spreading, point out that the disease apparently had its origin in two vessels tied up in port; that it first spread to cases 100 and 200 yards away from the ships and then gradually extended itself.

One of the most interesting communications is entitled, "An Inquiry Into and Observations Upon the Causes and Effects of the Epidemic Disease," which raged in Philadelphia from the month of August to the middle of December, 1793, by Jean Deveze, who was a Master in Surgery from Cape Français and physician to the hospital at Bushhill, and in addition Surgeon Major and Principal Physician of the Military Hospital established by the French Republic at Philadelphia. Printed by Padent, 1794. The left hand page is in English, the right hand page is in French. Deveze discusses the epidemic with which he had so much experience here and abroad in detail, but I regret to state that his treatment would hardly fall in with our conception of the proper thing to do, for he ordered a decoction of bark and a draught which he says was antiputrescent and cordial. He put blisters on the body and resorted to various other heroic measures. He noted that for a time the patient improved and then two or three days later he died, and a note is made that previous to his demise the patient had an infectious smell and the breath from his lungs was cold and stinking.

Deveze pays homage to a citizen who must be ever dear to his country for his zeal, courage and virture that has hardly an equal. He tells how Stephen Girard, merchant of Philadelphia, with an affluent fortune, regardless of the injury he must sustain by abandoning his house of commerce, gave way only to the generous dictates of humanity, not only contributing his wealth but attending the sick in person, approaching them with a philanthropy that proceeds from the heart alone. Deveze says that Girard nursed his patients so closely that he even saw one of the diseased discharge the contents of his stomach upon his benefactor. He then states that Girard forgetting himself and thinking only of the sufferings of his fellow-creatures, wiped the patient's clothes, comforted, and by force of persuasion, induced him to swallow the remedy, a previous dose of which, by and by, had made him vomit. And so he went from bed to bed fearlessly and without disgust.

This paper has already become too long, but attention may be called to a small pamphlet entitled "Proofs of the Origin of Yellow Fever in Philadelphia and Kensington in the year 1797, from Domestic Exhalation and from the foul air of the 'snow navigation,' from Marseilles and from that of the ship Huldah from Hamburg" addressed to the Governor of Pennsylvania by the Academy of Medicine of Philadelphia. This communication was forwarded to the Governor because it expresses the belief that he and many other learned members of the Faculty do not attend the deliberations of the College of Physicians. It is noteworthy, however, that such Fellows of the College as Rush, Dewees, Coxe, Physick and others signed this communication.

In all epidemics there is a tendency for religious ardor to run rampant. This is illustrated by a paper entitled "An Address in Christian Love" to the inhabitants of Philadelphia on the Awful Dispensation of Yellow Fever in 1798, by Thaddeus Brown, and he asserts that the epidemic was a judgment from God, but one mixed with mercy, a judgment designed for the punishment of sin and the reformation and benefit of mankind, and lastly as a judgment that unless suitably attended to, will probably be followed by more vindictive tokens of Divine displeasure.

There is also a little booklet entitled "A short Account of Yellow Fever," etc., for the "Reflecting Christian" by J. Henry C. Helmuth, a Lutheran minister, in which he describes vividly what he saw and expresses himself clearly as to the conditions, mental, moral, and social which existed. There is one statistical table at the opening of this brochure which gives a list of all the burials and the graveyards according to the religious sect to which the victim belonged. It is interesting to note that 352 were Episcopalians, 353 were Presbyterians, 335 were Roman Catholics, 373 Friends, and approximately 1000 German Lutherans or Calvinists, but no less than 1334 are not assigned to any sect, unless we consider such to be the Potter's field.

In the Chapel of Girard College a marble tablet states in a few words what Girard did, but how many citizens of Philadelphia as they pass his statue at the City Hall, erected by Alumni of Girard College, realize that the inscription which reads "Stephen Girard, Mariner and Merchant," should have added to it "Bravest of men."

A HISTORY OF SUBSTANCES KNOWN AS APHRODISIACS

By HENRI STEARNS DENNINGER, B.S.

CHICAGO, ILLINOIS

Introduction

APHRODISIACS are substances used to stimulate the sexual activity.

From time immemorial man has been concerned with such activity, both from a biological and an amorous aspect. The biological aspect is usually fulfilled by youth, but as age advances man becomes reluctant to part with the amorous pleasures he has known. Lack of resignation to the loss of the sexual powers is largely psychological in that the mere consciousness of being unable to use them increases the desire to do so. Nevertheless the factor of consciousness seems to have played little part in the search for aphrodisiacs. The more primitive races appealed to their gods, in whom they possessed an unshakable belief, to restore and revive their waning powers. This is well exemplified in the propitiatory ceremonies of the Chaldeans and early Egyptians. Similar traits may be found in the rites of the extant savage tribes.

The religious influence, however, was not powerful enough to control and limit this ubiquitous desire of man, and he soon began to strike out for himself in the belief that more secular remedies could be found. The individuals who thus sequestrated themselves from the ecclesiastical control became known as sorcerers, magicians and druids. However they borrowed from religion the element of mystery, which they elaborated into fantastic rituals, concomitant with the preparation of their remedies. These remedies, as we shall see, were largely the products of unbounded imagination and superstition; but some did work, regardless of the pernicious consequences.

The literature on aphrodisiacs is extremely diverse and in tracing the history of the subject one must pry not only into the medical and pharmaceutical writings of the age in question but also into the literary classics. Should the latter source be neglected, the history of aphrodisiacs would become largely a compilation of names and dates, due to the reticence of the earliest physicians. The literary writers have, however, perhaps unintentionally given us quite accurate delineations of the efficacy of some aphrodisiacs.

In order to bring the vast amount of divergent literature on this subject into a chronological sequence I have attempted to give the salient facts regarding the substances used and an extract of the literature where pertinent.

First we shall consider the literature of the early civilizations, the Egyptians, Greeks, Romans and the Arabians. Then we will turn to the Middle Ages, when the substances regarded as aphrodisiacal in action became so numerous and commonplace that they received considerable literary attention, and in many instances their abuse is found to be adequately discussed in the court records.

Finally we conclude with the medicaments of the nineteenth and twentieth centuries.

THE EARLY CIVILIZATIONS

As there is little in the Chaldean literature relative to our subject let us enter into the history of aphrodisiacs with the religious rites of the Egyptians, about the year 2980 B.C. during the period of Imhotep, when symbolic worship appeared to be fairly definitely established.

The Egyptians were a very religious people and perhaps exhibited an unparalleled devotion to the sun god, Osiris. This god, when authentically represented, possesses an erect generative organ, to show his proliferative and generative powers (Knight). Plutarch tells us that this is the same deity represented by the Greek Bacchus, the father of all things and the creator of man, and the symbol alluded to is his characteristic attribute. Primarily Osiris presided over the fertility of the fields, but human desire could not allow his powers to be so limited. Therefore, during the elaborate spring festivities the image of the god was washed with wine and copiously anointed with an oil. This oil was presumed to partake of the powers of the god, and he who licked it from any portion of the god's body was protected against impotence and debility. Mention of philters is scarce and enigmatical. Prayer and supplication also entered into these ceremonies and probably the earliest example is the "Incantation of transforming an old man into a youth of twenty," found in the third part of the Edwin Smith papyrus, *ca.* 1600 B.C.

The Egyptians knew of a beetle related to the cantharis. "This insect is found carved on the tombs of Thebes, letting a vapor fall into the mouth of a man from whose erect penis project young children" (Bernard). Curiously enough I have been unable to find definite recognition of aphrodisiacs in the medical portion of the Papyrus Ebers.

During Greek civilization the magical aphrodisiacs passed largely into the hands of sorcerers and tended to lose their religious character. In the hands of the sorcerers the preparation of philters and potions assumed considerable importance.

Homer had the magician Circe give Ulysses' companions a philter, the "nepenthe," of which there have been many interpretations: some think it was hashish or mandragora, both of which were long considered aphrodisiacs: others have seen in it nothing but the symbol of feminine seduction (Bernard). Another magician, Medea, figures in this legend as the maker of various root extracts.

The Greeks were in constant relation with the Orient and in consequence imported many aphrodisical medicaments. These imports contained spices and sachets of seagull anodine, which according to Xenophon makes one an "amiable companion with the ladies." After the time of Pliny (23–79 A.D.) the Greeks knew of the satyrion root which was given as an aphrodisiacal drink to the husband in the Roman marriage ceremony. The medical literature of this period contains very little of value for our concern. Pythagoras (580–489 B.C.) recommends various berries, and according to St. Jerome they produce a titillation of the female genitalia. To Theophrastus is attributed the herb known as "l'herb de Theophraste," but its nature is unknown. Langius in his medical letters reports that a single dose of the root of this plant, if swallowed, is capable of inducing seventy successive amorous engagements.

About 350 B.C. Aristotle became interested in therapy, recommending oil of peppermint as a sexual stimulant. He was also the first to mention cantharis as an aphrodisiac.

Another aphrodisiacal substance which gained prominence at this period is "Scinc" (Scincus officialis and S. marinus) the terrestrial crocodile. This reptile supposedly drew its aphrodisiacal properties from the insects on which it fed. It is cited by Galen and Pliny and is found in the literature up to the middle of the nineteenth century.

The Romans at the time of the Republic probably lacked the mental refinements necessary for amorous pleasure and consequently paid little attention to the aphrodisiacal aspect of love. However, sorcery still flourished in the rural districts. Thus in the sorcery of Erichtho, described by Lucian, a beverage containing menstrual blood was used. Philters were concocted from plants collected on graves in the moonlight. It is probable that these philters contained cantharides, satyrium, silphium and hippomane. One of these philters is well known and ascribed to Philon, who lived at the time of Augustus. It is called "philonium." The preparation and absurdity of this remedy are adequately discussed by Bernard. Galen (131–201 B.C.) records the substances used in this potion as follows: saffron, Spanish camomile, euphorbia, white pepper, henbane, spikenard and opium. These are to be mixed according to their stated weights and then compounded with the honey of Attica.

According to tradition the poet Lucretius lost his reason and died as a result of the blood philter which his wife had given him: and similarly Caligula died from hippomane poisoning (Bernard). The substance hippomane has been used from antiquity and consists of the allantoic sediments of the colt or the vulvar secretions of the mare. According to Pliny, hippomane placed on the genitalia of a brass mare excited extreme rut in the stallions which approached it. In the Aeneid, Dido added to the philter prepared to retain Aeneas, hippomane obtained from the charger stolen from his eager mother.

It is interesting to note that cantharides were known to Pliny and Hippocrates and, during the major portion of the Roman epoch, they were used as abortives rather than aphrodisiacs. For this reason their sale was prohibited by the law of Cornelia.

During the decadence of the Roman Empire, the attitude of the people changed, as expressed by the aphorism, "Sine Ceres et Baccho friget Venus."

Perhaps Ovid was under the influence of some philter or aphrodisiacal diet when he performed this series of engagements:

> Et cependent, deux fois, la blonde Ellage,
> Trois fois Pitho, recurent mon hommage.
> Corine m'a vu encore plus courageux.
> Neuf fois, la nuit, encenser son image.
> (DUPOUY: Médecine de l'ancienne Rome.)

The first definite references in Hindu literature to substances used for aphrodisiacal purposes are found in the "Kama Sutra," written by Vatsyayana about the year 300 A.D. It is a summary of Hindu erotology previous to this time and contains quotations from authorities written several centuries before. The concoctions which have come down to us through this source are chiefly opotherapeutical in nature. Among the preparations mentioned is sweetened milk in which the testicles of goat or ram were boiled. Usually the mixtures were made more complex, as this seemed to add to their efficacy. Thus, to the above philter might be added a quantity of pepper, a decoction of various roots, combined with a mixture of honey or alcohol whipped with sparrow eggs. A remedy composed of the testicles of rats, frogs and sparrows had the reputation of giving a man the power of performing coitus indefinitely, on the condition that he did not touch the ground (Kama Sutra, pp. 108ff.).

Hebrew civilization recorded in the Bible two substances used for aphrodisiacal purposes. The daughters of Lot gave wine to their father to restore his vigor: and Rachel asked Lea to give her some "dudaims" (mandrake), an aphrodisiacal fruit found in the country at harvest-time. She wished to give them to her husband, so that he would make her pregnant (Bernard).

Returning to Hindu literature, in order to preserve the chronological sequence, we next examine the work of Cheikh Nefzaoui entitled "The Perfumed Garden." This book appeared during the year 925 of the Hegira. The first authentic translation appeared in French. It was made by an army officer in Algeria whose name is unknown. The work is essentially a treatise or manual of Arabian erotology and contains, in addition, many historically valuable medical conceptions. The material concerning aphrodisiacs is found in the chapter dealing with enjoyment in the generative act.

In order to obtain vigor in coitus, one must take, early in the morning, a beverage consisting of the fruit of the mastic tree macerated with oil and honey. However, "the same results may be obtained by massaging the virile member and the vulva with gall from the jackal." A reference occurs here to Djelinouss[1] who recommends a three-day diet consisting of a glass of thick honey, twenty almonds, and a hundred grains of the pine tree, taken before retiring. Should the individual on this diet feel hunger, the addition of a macerated mixture of honey and onion seed will not be detrimental. The opotherapeutical remedies consist of the melted fat of a camel's hump rubbed on the penis before coitus, and ass's milk which is similarly employed. An ointment used on the abdomen, testicles and penis was composed of pyrether (*Anthemis pyrethrum*), ginger (*Amomum zingiber*), and the oil of lilac. Many other concoctions are mentioned, but the only new substances introduced are cinnamon and chrysocolla, which is probably borax. The Arabs did not limit therapy to aphrodisiacs, for in other portions of the book we find very similar remedies used for sterility, impotence and debility. An account of them would not justify the repetition incurred.

During the years between 1197 and 1248 A.D. we have recourse to the writings of Abd Allah ibn Ahmed, known also as Ibn Al-Baitor (Campbell, p. 101). His book is a compilation of the opinions of various authorities on particular subjects. Avicenna (980–1037 A.D.) claims that the eggs of all birds, particularly those of the passers (sparrow family), are valuable aphrodisiacs. They are much more efficacious, according to Rhazes (860–932) when made into an omelette with berries and onions. Lichens may also be added to augment the secretion of sperm. It seems that the mere prescription of a concoction was considered effective, regardless of the condition to be treated. Such a contradiction is notable in the case of the iris, which is employed to combat sterility in women, and also to prevent excessive waste of sperm, or seminal pollutions, in the male. Thyme won its spurs by strengthening the veins and provoking coitus. Many substances of less repute are used as aphrodisiacs, such as the Handakouka berry (*Latus saurage*), and a desert plant named Habbes somna, characterized by leaves which become white during the night.

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[1] An Arabic word meaning extreme pleasantness, which is applied to Galen. It is comparable to his Greek nickname, Galenos, meaning sweetness.

In the Ananga-Ranga are found compilations of erotological procedures and interesting prescriptions very similar to those in the "Kama Sutra" and "The Perfumed Garden." The remedies here considered are concocted with all the ingenuity characteristic of Arabian physicians, who recommend the "Prayoga," or external application of various medicaments. The only new substances introduced by the "Prayoga" are mercury and arsenic.

The Middle Ages

The druids who lived in Gaul during the Roman Conquest were the true magicians or sorcerers of their day. They possessed great faith in botanical remedies, and knew of savin and verbena (venereal herbs) which enjoyed the reputation of aphrodisiacs. With the advance of the Roman Conquest, however, they were forced more or less into seclusion and bequeathed to their descendants, the true sorcerers of the Middle Ages, an extensive knowledge of medicinal plants to be administered with mystery and extravagant ceremonies. The sorcerers concerned themselves, mainly from popular demand, with the preparation of beverages calculated to give rise to love or renewed desire. Such potions usually contained cantharides and the spices introduced from the Orient during the period of the Crusades. Delrius mentions the use of frog, adder and remora bones. Remora was a fish of great repute in magic and was called the "petit malaut de poisson" by Ambroise Paré. To these remedies may be added the eagle calculus and the complicated opotherapy in which menstrual blood and human sperm assumed an important rôle. According to Michelot, the abundance of cutaneous lesions during this period was due to the use of these philters, most likely to those containing cantharides.

Ambroise Paré remarked upon the beautiful blue and gold colors of the cantharis flies, but warned of the danger incurred in their use. The effects of a cantharis philter are well delineated by Cabrol:

> In 1572 we went to see a poor Orgonian man in Provence, who was affected by the most horrible and frightful satyriasis one could ever see. The fact is this; he had quartan fever: to cure it he had consulted an old sorceress, who made him a potion composed of an ounce and a half of nettles and two drams of cantharides, which made him so ardent in the venereal act that his wife swore to us by her God that he had been astride her, during two nights, eighty-seven times, without thinking it more than ten, . . . and even while we were interviewing him, the poor man ejaculated thrice in our presence, embracing the foot of the bed and moving against it as if it were his wife.

The English appeared to have had a more delectable and delectable choice of aphrodisiacs. Shakespeare had Falstaff invoke the virtues of aphrodisiacs while in the forest with the two merry wives:

> Let the sky rain potatoes, let it thunder to the tune of green sleeves, hail kissing comfits and snow eringoes: let there be a tempest of provocation, I will shelter me here. Merry Wives of Windsor, (Act V, Sc. 5.)

The eringoe root and the sea-holly were considered aphrodisiacs, and Dr. Bucknill reports that Dr. Hall prescribed them for his wife.

The mandragora or mandrake root played an important rôle not only in therapy but also in the popular superstition and literature of the fifteenth century. The root resembles the thighs and legs of a man, and in this respect is comparable to the Chinese plant, gensing. This fanciful resemblance perhaps induced the notion that it was an aphrodisiac. When pulled from the ground this root emitted a horrible shriek; consequently it was considered necessary to plug the ears while collecting it. "The cries of mandrake never touched the ears with more horror." (The Atheist's Tragedy, 1611.) In "Romeo and Juliet" we find:

> What with loathsome smells
> and shrieks like mandrake torn out of the earth,
> That living mortals hearing them go run mad
> . . . (Act IV, Sc. 3).

Shakespeare mentioned mandrake in several other plays, and in "Anthony and Cleopatra" (Act 1, Sc. 5) alluded to it as a soporific for which purpose it was originally employed by the ancients.

The most popular method of collecting mandrake was to tie to the root a dog which has been starved for several days; then to tantalize him with fresh meat kept just out of his reach, until he succeeded in disrooting the plant. The traditional fact that this root found its most advantageous environment in the shadow of the gallows, where it could obtain nourishment from the fat and blood of executed criminals, was neglected by Linnaeus. The sagacious advice of Robert Burton that " . . . love itself is the most potent philtrum . . ." should not be forgotten.

During the closing years of the Middle Ages, the apothecary shops appeared and the various medicaments passed into new hands. The preparation of philters, though stripped of the cryptic ceremony, remained essentially the same. However, a change is to be noted in the fact that an extensive commerce in drugs and remedies arose among the apothecaries. This innovation was probably due to the fertile imagination and fancy of the Arabs in the perpetration of therapeutics and to the enormous number of remedies inherited from sorcery.

Early in the Renaissance period the aphrodisiacal remedies were advertised in strangely formed boxes, some of which represented erect penes (Bernard).

Lemery, in his "Dictionnaire des drogues" (1759) divided the remedies into two principal groups, namely, those containing spices and aromatics, and those of animal origin (opotherapeutical).

At this time herbs were very costly and the spices and aromatics of foreign origin possessed an exotic prestige. Among the herbs in high favor were zedoary, ginger, pepper, cumin, clove and vanilla.

A popular aphrodisiacal remedy of animal origin consisted of sparrow brains. The use of this substance arose from the ancient belief that the sperm issued from the brain or spinal marrow. Galen says, "It is the sweet essence from the marrow of the back." According to A. Paré, " . . . it is the humid and gentle excrement which comes principally from the brain."

Opotherapy in general however followed the conception indicated by Galen, as stated by Albucasis: "The maintenance and the proper functioning of an organ is effected by the like organ, because every body and each part of the body has its special faculty" (Bernard). Thus, the testicles of a bull or frog were prescribed by the Arab physician, Mesue, as sexual stimulants. Donkey sperm was similarly recommended by Pierre Franco. Opotherapeutical remedies, however, were not obtained solely from the lower animals: menstrual blood, which has been mentioned, still maintained its popularity. Human sperm was cited as a valuable aphrodisiac in the *Breslauen Sammlungen* of October 1726; and Dr. Bouffard, physician of the colonial troops, stated that pharmacists paid dearly to obtain the testicular secretions of young men between twenty and twenty-five years of age. This fluid was made into pills and sold as a remedy for impotence.

The ancient remedies and aphrodisiacs given in the "Pharmacopei de Lemery" and "Les Commentaires de Dioscorde" by Matthiole, are far too numerous to mention here. They represent all possible combinations of the substances known, but only musk seems to have gained increased repute.

During the Renaissance the public was, to say the least, rather voluptuous, and aphrodisiacs were equally common in the household and in the apothecary shops. In the home, the cock's comb and testicles, the spices, and cantharides were extensively used in cooking. The meals, as judged from some sample menus, must, at least, have been nourishing.

In the court life of this period, the cantharides reigned supreme. Mme. du Montespan gave philters containing cantharides to Louis XIV in order to retain his affection. Madame de Pompadour, the favorite of Louis XV, consumed this drug in large quantities to keep pace with the king's ardor, and finally became crazed by the diet (E. de Goncourt). The ambassador from Siam presented to Louis XVI the miraculous panacea of the East—ginseng. The bifurcated root of this plant resembles the thighs of man, which fact is believed to have won for it the name and reputation of an aphrodisiac, comparable to that of mandrake. It was later found to have no recognizable aphrodisiacal properties, but is still listed in the medical dictionaries as an aphrodisiac.

During the reign of Louis XVI, Leroy, a contemporary of Lavoisier, discovered the aphrodisiacal properties of phosphorus. Ricord says of this chemical, "[it] often fails in its effect, or creates an obviously unhealthy, or even painful state, the idea of which is not conciliable with the pleasure of love."

In 1787 Murray mentioned hashish, which appears to have originated in India and only reached the Musselmen of Syria and Egypt towards the end of the eighth century. During the period of Romanticism hashish had many disciples, among whom were Baudelaire, Theophile Gautier, and the dancer Maryx (T. Gautier and Bernard). Villard tells us that the Arabs used it extensively to produce voluptiousness. Its present status, however, is by no means so secure.

The Nineteenth Century

Towards the close of the Renaissance and the introduction of the nineteenth century the faith in aphrodisiacs waned, until finally they became the object of incessant debates. During this transitional period there appeared Brillat Savarin's resourceful book, "La physiologie du Gout," many of whose chapters are related to our subject.

Cullen (Edinburgh, 1789) stood out as one of the first debators, by denying the existence of direct aphrodisiacs. Schwilgue (1819) questioned the entire subject, and Ratier admitted only the indirect aphrodisiacs, that is, those which function only in suppressing the causes of impotence. Pereira (1859) claimed that direct aphrodisiacs could exist, while Ricord, in an article full of skepticism in the "Dictionnaire de Jaccourd," called aphrodisiacs the "false pretenses of Venus." Brown-Sequard, however, uninfluenced by these arguments, proceeded to introduce his revised glandular opotherapy, the immediate approbation of which has not been substantiated.

During the latter half of the nineteenth century, the introduction of new substances was in no way deterred, but perhaps encouraged by the failures recognized in previous attempts to find the ideal stimulant.

Kava-kava (*Piper methysticum*) made its appearance in Europe about 1844. It is one of the spices of the pepper family and is the principal constituent of the favorite Polynesian beverage. Penaud tells us that it provokes amorous desire and is highly esteemed as an aphrodisiac by the natives of Tahiti. Most observers, however, state that it induces an intoxication and muscular weakness, without affecting the mental powers beyond causing confusion, and ultimately producing sleep. Kava-kava has anti-blennorrhagic properties and is given internally in gonorrheal infections; cantharis and turpentine have a comparable action, and Bernard tells us that even the latter substance has been used as an aphrodisiac.

H. L. Byrd (1875) introduced damiana (derived from the Mexican plants, Turnera aphrodisiaca and Haplopappus discoideus) as an aphrodisiac. In the same year Caldwell also reported the therapeutic value of the product, and in 1880 his rather successful results were published. The therapeutical use of this substance was, of course, followed by the usual debates and contradictions.

Bernard informs us that "at a certain time there was a tendency to consider the tuberculous as erotic, and naturally tuberculin was incriminated. From that it was only a step to experimentation upon tuberculin as an aphrodisiac: the attempt was made, but without result."

Spiegel, a German chemist, became interested in Yohimbe bark, a substance extensively used by the savages of Cameroun, who attributed to it sexually stimulating powers. In 1896 he succeeded in isolating from the bark an alkaloid which he believed to be responsible for the aphrodisiacal action. This alkaloid, introduced as yohimbine, gained a rapid and widespread reputation as the ultimate in this type of therapy. Bernard reported the successful use of yohimbine in cases which were communicated to him confidentially. A contemporary of Bernard, V. G. Vecki, doubted the efficacy of this alkaloid and further, found little value in any of the aphrodisiacs then in use. He felt that too much merit was attributed to the drugs as the result of experimentation upon animals rather than upon man. However, Vecki expressed his belief that muiracithin (introduced and named by Eulenberg about 1893) and lecithin might have an aphrodisiacal action.

At the present time the status of aphrodisiacs is quite problematic, as contemporary authors cannot agree as to the efficacy of the substances used. Waugh and Abbot in their "Text-Book of Alkaloidal Therapeutics" present an annotated compilation of the modern drugs now used as aphrodisiacs; among these are Echinacea augustifolia, gossypin, senecin and corvin. Yohimbine, they state, will produce immediate sexual stimulation in animals, but not so in man. Cantharis is not recommended, as it does not excite the sexual activity. It is an irritant, and the severe priapism, turgidity and even gangrene of the penis resulting from its use are far from pleasurable, and not at all comparable to stimulation of the sexual sensations.

Ivan Bloch, however, highly recommends yohimbine and to a lesser degree phosphorus and strychnine. He also regards the lecithin and muiracithin combination as a specific for functional impotence. Robinson, on the other hand, has never been able to convince himself that these drugs, excepting possibly strychnine and cantharis, have any value as aphrodisiacs. "As to damiana—I will say that it is utterly worthless" (p. 170). He also suggests that a "good dose" of tinctura capsica or tinctura zingiberis may be effective in some cases.

There is a recent tendency to consider as aphrodisiacs substances having a central action, that is, on the cortex. For instance, alcohol, during the stimulating stage, is said to remove the inhibitions instilled into the individual by civilization, thus allowing his more primitive nature to assert itself.

George Hirth, however, recognizes an "impotentia alcoholica" (*Ways to Love*, pp. 461–463), while the porter in Macbeth found that "drink may be said to be an equivocator with lechery; it provokes the desire, but it takes away the performance . . . " (Act II, Sc. 3).

The substances or psychological influences which exert a cortical action are not entirely compatible with the definition of aphrodisiacs, and should accordingly be considered indirect stimulants. Among such stimulants are opium, hashish, and the reaction produced by salacious literature or pornography.

Thus from the myriad remedies of the past, compounded with religion and fervor, with fancy and imagination, and enhanced by desire, we come to the present-day aphrodisiacal armamentarium which has dwindled until only several of these substances are recognized as being of any potential value.

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HISTORY OF SYPHILIS

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ALL authorities agree that syphilis in epidemic form appeared in Europe in 1495 following the siege of Naples. There is some question as to whether syphilis had ever been present in the civilized world prior to 1493. Finally, what evidence have we that syphilis was introduced into Europe by the sailors of Columbus after his first voyage to the West Indies? The subject will be discussed under these three heads. As a prelude, however, it might be well to review briefly the evidence presented in Fracastoro's poem on syphilis. It is an interesting mixture of fact and fancy, giving, however, a fairly accurate summary of the knowledge of syphilis of that period.

Girolamo Fracastoro was born in Verona in 1484. He became one of the foremost physicians of his day, and was famous not only for his learning but also for his honesty. He was the first to suggest the contagious character of disease and described three methods by which infections might be transferred. In addition to his knowledge of medicine, he was a physicist, astronomer, pathologist and finally a poet. His poem on the morbus gallicus was written in 1521, but first published in 1530. Written in Latin, it was translated into English early in the eighteenth century by Tate.[1]

He traces its appearance in Europe to the siege of Naples:

To Naples first it came
From France and justly took from France its name.

Fracastoro is generally credited with having introduced the name syphilis. He describes how a shepherd, whose herds were dying on account of drought, cursed the sun god who in turn visited upon him this disease:

A shepherd once (distrust not ancient fame)
Possessed these downs and Syphilis was his name.
A thousand heifers in these vales he fed
A thousand ewes to those fair rivers led.
From him the malady received its name.

He believed the disease was brought to Europe from America, although suggesting its earlier presence in Europe.

Yet where the western ocean finds its bound
(The world so lately by the Spaniards found)
Beneath this pest the wretched natives groan
In every nation there and always known.

He refers to mercury as a remedy and tells in a delightful manner how its virtues were revealed by the gods. A huntsman, friendly to the gods, contracted this disease. He prayed the gods to give him relief. He was told to offer a sacrifice of a black ram at the mouth of a certain cavern and on the day following to return to the cave when he would be cured. On his return, he was met by a nymph who guided him to a stream of quick silver.

But here turn off and take the right hand way
This path does to that sacred stream convey,
In which thy only hope remains, she said,
And under golden roofs the patient led.
Hard by, the lakes of liquid silver flowed
Which to the wondering youth the goddess showed,
"Thrice wash in these," said she, "thy pain shall end."

And all the stench into the stream descend,
Thrice with her virgin hands the goddess threw
On all his suffering limbs the healing dew.
He at the falling filth admiring stood,
And scarce believed for joy the virtue of the flood.

He tells how to prepare and use a mercurial ointment:

And for vehicle use lard of swine.

After going into detail on the method of preparing it, he gives directions as to how it should be applied:

With these ingredients mixed you must not fear
Your suffering limbs and body to besmear.

As it is claimed syphilis appeared during the siege of Naples and, following this, spread through Europe and the British Isles, it might be of interest to know something more of the army of Charles VIII. In 1494 he mobilized in France a nondescript army, made up largely of soldiers of fortune. His troops numbered about 30,000; 6000 of these were Swiss, 10,000 soldiers were from northern France and 5000 from southern France. The balance of his army was made up of English, Hungarians, Spaniards, Italians and Slavs. It is well to note the presence of the Spaniards. In addition, Ferdinand of Spain, it is claimed, sent an army to relieve Naples, so Spaniards were present in both the defensive and offensive armies. As was customary at that time a large number of women accompanied the soldiers, wives, sweethearts and ladies of pleasure. It is impossible to picture the immorality of this period and this accounted in a considerable measure for the rapid spread of syphilis.

His army crossed the Italian border September 1, 1494. Later on, in its march it passed through Florence and Siena, reaching Rome December 31, 1494. Here it remained until January 28, 1495. Rome at this time was the theater of activity of a large number of Spanish prostitutes. At a somewhat later date (1520) Delicado[2] claimed that Rome harbored 15,000 ladies of pleasure.

Leaving Rome January 28, Charles' army entered Naples February 22, 1495. It is not correct to refer to the "siege of Naples," as the army of Charles was welcomed by the Neapolitans. Only a few fortresses held out two or three weeks. The historian relates that the people of Naples placed tables, on which were food and wine, in the streets for the invading army. There is little doubt that there was much riotous living.

Charles' army remained in Naples until May 20, 1495, when he set out on his return journey. He arrived at Lyons, November 7, 1495. Meanwhile his army had gradually disbanded, many of the infected soldiers probably returned to their homes, there furnishing a new focus for dissemination of the disease.

There is abundant evidence that syphilis became epidemic at this time. Astruc[3] who has written one of the most comprehensive treatises on this subject including a careful review of the literature, says, "The disease made its appearance in Europe at the time of the siege of Naples as may be learned from the joint testimonies of all the physical writers who flourished then in Italy" (p. 32). He gives several references. Caspare Torella[4] in the year 1520 in discussing syphilis says, "The learned avoided having to do with this disease, frankly confessing they knew nothing about it . . . In our days there is no body who has ever seen such a monstrous complaint." Gilinis[4] doctor of arts and physics, says, "Last year (1496) a very violent disease attacked great numbers of people both in Italy and on the other side of the mountains which the Italians call the French Disease, affirming that the French first introduced it. The French call it the Neapolitan Disease because they were first infected in Italy and especially in Naples. This disease was not known to the moderns?" Sabellicus,[5] a famous Italian historian who died of syphilis in 1500, refers to this new disease which appeared in Italy in 1495. He noted its rapid spread to Germany, Slavonia, Macedonia and Greece. "Almost the twentieth part of mankind suffered its malignity." Marcellus Cumanus of Venice, surgeon to the troops at the siege of Naples, speaks of the presence of syphilis, "In Italy in the year 1495, owing to celestial influences, a disease appeared among the soldiers characterized by a small pustule on or under the prepuce about the size of a millet seed and later the patient developed aching of the extremities and pustules may appear over the entire body."

There was a decree issued by the Parliament of Paris, March 6, 1497. Astruc[6] gives a copy of the edict and the regulations issued following this decree:

> This day the sixth of March, whereas there are many sick persons in the city of Paris infected with the disease called the great pox which for these two years past has spread very much in this kingdom, as well at Paris as in other places, so that there is cause to fear lest its violence should increase more in the spring season, it is thought proper to make some provision against it.

Ten regulations are then given directed especially toward isolation of the infected. A few of these regulations will be mentioned:

> Public notice shall be given by the crier in the King's name that all strangers infected with the great pox, whether men or women, who were not residents of the city of Paris at the time they contracted this disease, shall within four and twenty hours depart the said city of Paris and return to the countries and places where they were born, or where they had their abode when they caught this distemper, or where else they please, under pain of death and to forward this their departure, they may go to the gates of St. Dennis and St. Jacques and there they shall find persons appointed who shall give to every one of them four Paris sous, upon taking down their names, and charging them not to return under pain of death before they are perfectly cured of the said distemper.
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> That such of the sick as were born in said city or resident there at the time when they contracted the said disease, as well men as women, and have houses to retire to, take care to shut themselves up in said houses within four and twenty hours and no more walk abroad into the city day or night under pain of death; and such of them as are poor and indigent make the case known to the ministers and overseers of their respective parishes that they may be supplied by them with proper provisions without going out of their houses.
>
> That all other persons sick of this distemper who have caught it as inhabitants or servants in this city and have no houses to retire to, take care to withdraw themselves within four and twenty hours, under pain of death, to the suburb of St. Germain des Prez, where houses shall be prepared for their reception.

Another degree somewhat similar to this was issued January 25, 1498. This edict forbade any person with this disease to remain in Paris "under pain of being thrown into the river."

Bloch[7] who has carefully reviewed the literature of this period says the old chronicles of the Italian cities frequently refer to its ravages, some claiming it was more fearful than the black death. In all these documents it is referred to as the "New Disease" or as a disease the physician had never seen before. One of these documents, written by Summaripa[8] in 1496 describes clearly the symptoms of syphilis and recognizes the secondary manifestations as a sequence of the venereal sore.

Karl Sudhoff,[9] the famous German medical historian, in conjunction with Charles Singer,[9] has published a volume on "The Earliest Printed Literature on Syphilis." This includes the first ten printed treatises in German and Italian on syphilis. The first appearance of printed professional medical works was in 1471. The first paper on syphilis appeared in 1495 and during the next two years nine more papers were published. This suggests that syphilis was first recognized at this time. These papers contain little of value except to furnish evidence of the interest in this disease. Eight of the ten writers refer to the use of mercury.

Konrad Schellig of Heidelberg, author of the first paper, was physician to Philip of Palatine and was probably responsible for the Edict at Worms, aimed at controlling syphilis.

Caspare Torella, a Spanish author of one of these pamphlets, became court physician to Pope Alexander VI. His practice was probably limited to the papal household. However, in two months, September and October, 1495 he claimed to have treated successfully seventeen cases of syphilis, including the profligate son of the Pope, later an Italian cardinal, Cesare Borgia.

The Emperor Maximilian (1450–1528) second founder of the House of Hapsburg, who is described as possessing a gloomy type of piety, believed that this outbreak of syphilis was a punishment for profaning the divine name. He assumed power in 1493 and soon after this prepared an edict ordaining special punishment for blasphemy. This resulted, in 1495, in an edict at the Diet of Worms where official mention of syphilis is made for the first time. This edict was issued August 7, 1495. It was first printed in German; later in Latin. "Formerly," says the German version, "as the result of blasphemy, famine, earthquakes, pestilence and other plagues fell upon the earth. But in these days of ours, as is evident, grevious and sundry sicknesses and scourges have ensued. Notably in our time there have been severe diseases and plagues of the people, to wit the bösen blattern which has never occurred before nor been heard of within the memory of man." The Latin version uses the word malum francicum in place of bösen blattern.

The first official evidence of its presence in Britain appears in the Council Register[10] of the Borough of Aberdeen, April 21, 1497. "The said day, it was statut and ordanit be the alderman and consale the eschevin of the infirmity come out of Franche and strang partis, that all licht weman be chargit and ordaint to desist fra thar vicis and syne of venerie, and all their buthis and houssis skalit, and thar to pas and wirk for thar sustentacioun, under the payne of ane key of het yrne one thar chekis and banysene of the towne."

The next report is from the town council of Edinburgh, a proclamation of James IV, dated September 22, 1497. Here the term grandgore is used for syphilis, and this name continued to be used in Scotland until the seventeenth century. An order is issued that all prostitutes or others infected with the grandgore are to leave the city on a certain date and congregate on the sands of Leith where a ship awaits to transport them to the island of Inch Keith in the Firth of Forth and "remain there until God has provided for their health." "And wha sa be is foundin infectit and not passent to the Inche, as said is, be Mononday at the sone ganging to, shalle be byrnt on the cheik with the marking irne that they may be kennit in tyme to cum."[10]

Another ordinance was issued at Aberdeen October 8, 1507, which practically established a quarantine on all those who have "The strange sickness of Naples."[11]

In England syphilis is first mentioned March 15, 1503.[11] In the book of the privy purse expense of Elizabeth, queen of Henry VII there is an entry of forty shillings paid a youth, John Petriche "oon of the sonnes of mad Beale," for school expenses. One item in the account is twenty shillings paid to a surgeon for treating him for the pox. The surgeon's bill was just half the total expenses for the year.

Creighton states that the first original English writer on pox was William Clowes. In 1579 he wrote a treatise dedicated to the "Society of Barbers and Chirugions." This work is of special interest in showing the great prevalence of the disease. He states that he and three others in St. Bartholomew's Hospital treated over a thousand cases during the previous five years. He further says, "For it hapneth in the house of Saint Bartholomew very seldom but that among every twenty diseased persons that are taken in fifteen of them have the pocks."

There is little doubt that an epidemic of syphilis swept over Europe and the British Isles immediately following the siege of Naples. Mention is frequently made of its being a new disease. The lack of a common name for syphilis also suggests that it had not been known before. The Portuguese who contracted the disease from the Spanish referred to it as the Spanish Disease or Castilian Disease. After the siege of Naples it was widely referred to as the French Disease, although the French named it the Neapolitan Disease. In Germany it was frequently called the bösen blattern (evil pocks). As it spread to Poland through Germany it was known as the German Disease. In Russia it was the Polish Disease. In Persia it was the Turkish Disease. Apparently, syphilis was introduced into Japan by Portuguese sailors and called the Portuguese Disease. In Tahiti it was referred to as the English Disease.

Is there any evidence that syphilis prevailed in any part of the civilized world prior to 1493? This can best be determined by a study of old documents and the examination of ancient skeletons or bones.

Both Bloch and Astruc have diligently searched ancient literature for evidence of syphilis.

Bloch states that the few reported earlier appearances of syphilis were due to printers' or translators' errors. Bodeman[12] in a volume published in 1819 quotes from an old manuscript of 1472, where reference is made to a person who suffered from the French Disease. The data inserted by Bodeman does not appear in the original manuscript. Clementius Clementinus, physician to Pope Leo x, declared that the word morbus gallicus was used in Italy in 1488, but associates this date with the siege of Naples. Delicado[13] refers to the presence of syphilis in Italy in 1485, but later states that this particular individual contracted the disease at the siege of Naples. Bloch has apparently investigated this phase of the subject very carefully; has studied early manuscripts, and comes to the conclusion that there is no written evidence of syphilis prior to the discovery of America by Columbus.

Astruc made a similar exhaustive study of ancient literature and comes to the same conclusion that there is no written evidence given by any physician since the time of Hippocrates that suggests the presence of syphilis. He discusses passages which some writers have accepted as evidence of the antiquity of this disease. He reviewed reputed evidence in early Greek and Latin writings and concludes that the diseases described were not syphilis. He discusses in detail biblical accounts of certain maladies thought by some to be syphilitic, but in none of these is the information sufficiently detailed to carry conviction.

The belief has prevailed that syphilis in China dates back to ancient times. A Japanese physician, Okamura[14] has made a very thorough investigation of this question. He claims that the first mention of syphilis in Chinese literature is in 1504. This is an account of its appearance in Canton following the landing of a Portuguese ship.

In 1865, a Captain Dabry, consul at Hankow, published a book on China from a medical viewpoint. He was not a physician. He claimed that an old Japanese book dating back 3000 years showed that syphilis had been present in China since very ancient times. This book, "Sui-Wan," has been examined by Okamura and the only mention of venereal disease is merely a reference to an ulcer on the genitalia.

A very comprehensive medical work appeared in China two hundred years after this. The only reference to venereal disease is a statement that tumors which later ulcerated appeared on the genitalia. No details are given and it would be rash to conclude that the described lesions were luetic.

In the year 1600 A.D. a Chinese monograph on syphilis appeared. The disease was called Mui-Chong, the first part of the word meaning fungus and the latter part an ulcer or rash. The writer recognized congenital lues. He described gummata and said they might first appear thirty years after the primary infection.

The first book on syphilis in Japanese appeared in 1575. The author described the initial lesion and the rash. He states that lues first appeared in Japan in 1569, following the landing of a Portuguese ship at Nagasaki, and from this point rapidly spread throughout the country.

Okamura states that some of the old authorities claim that 80 per cent of the population were infected.

Astruc[15] devotes a chapter to the early presence of syphilis in China. He obtained his information from Jesuit priests living in Pekin. He was informed that syphilis was thought to have been present in China since ancient times. Astruc questions this, as the Chinese had a number of different names for this disease. If it had been present for centuries it is probable that a common term would prevail. They agreed that the disease originated in southern China and from there spread to northern China. One of the names given to the disease was Ulcer of Canton suggesting its origin in this city. Astruc expresses the opinion that the disease was introduced into Canton by the Portuguese who were the first Europeans to visit this part of the world. In 1517, a fleet of nine Portuguese ships arrived at the port of Canton, where they remained for fourteen months. Astruc relates that Captain Ferdinand de Andrado and his crew (according to the historians) "behaved very prudently." His brother, however, who later visited Canton was renowned for his licentiousness.

There is no written evidence previous to 1495 of syphilis in Africa. Leo Africanus[16] writing in 1520 relates that syphilis was brought to the north coast of Africa by the Spaniards. It was known as the Spanish Disease in northwestern Africa and as the Italian Disease in Tunis, suggesting two sources of infection.

Astruc claims that syphilis appeared in Africa following the banishment of the Jews and Mohammedans from Spain during the reign of Ferdinand and Isabella.

When we turn to the evidence of syphilis in the bones of ancient man, the problem becomes rather complicated. Are there any pathognomonic bone lesions of syphilis, and if so would hundreds of years destroy these characteristic lesions? G. Elliot Smith[17] states that in the examination of 30,000 Egyptian mummies not once was there any evidence of syphilis or anything remotely resembling syphilis.

Sir Marc Armand Ruffer[18] reports that "no pathological specimen of this disease in ancient Egyptians has as yet been discovered."

F. Wood Jones[19] has examined 6000 bodies in Nubia and was unable to detect any evidence of syphilis.

Hundreds of ancient skeletons have been exhumed in Europe, including those found in ancient Pompeii. These specimens have been preserved in the various museums of Europe. Bloch[20] says that not a single bone in any of these museums presents evidence of syphilis and only rarely any thing that might even be considered as syphilitic. Virchow[20] claimed that in all the museums of Europe he has never seen evidence of syphilis in pre-Columbian bones.

Osteoarthritis, which was very common in ancient man, has been mistaken for lues. Certainly the majority of bone lesions from syphilis cannot be differentiated from lesions of a similar character arising from infection or trauma. This is especially true of ancient bones.

The presence of syphilis in pre-Columbian skeletons in America would furnish strong presumptive evidence that the disease originated here. In Central America and the West Indies, due to the heat and moisture, ancient bones have been destroyed. Some old Peruvian skulls have been thought to show evidence of syphilis.[21] It is debatable whether these lesions are luetic and, if so, whether they are pre-Columbian.

Joseph Jones[22] claimed he found numerous syphilitic bones in mounds and graves in Tennessee. Edwin Klebs, who examined these specimens in 1896, thought that the lesions were syphilitic.

Recently Means[32] has reported syphilis in two skeletons from Ohio mounds. If we were certain these lesions were syphilitic, it would still be necessary to prove that the mounds were pre-Columbian.

Ales Hrdlička, of the Smithsonian, Institute, a recognized authority on American paleopathology, following an inquiry wrote me as follows: "Pre-Columbian syphilis is still a mooted question. We have to this moment no positive proof of it. I know of no positive sign by which, especially in the earliest stages, a non-syphilitic inflammation of the periosteum or the bone can be distinguished from syphilitic."

There is scarcely any question that syphilis first appeared in Europe in epidemic form following the siege of Naples. There is no evidence that it had ever been present in Europe, Asia or Africa prior to 1493. What direct evidence is there that syphilis was brought to Europe by Columbus?

In 1857, Bonifacio Montejo, a Spanish army physician, wrote a book on syphilis. He had access to old manuscripts in the National Library of Seville. He discovered some very interesting papers of contemporaries of Columbus which threw new light on the history of syphilis. Bloch[24] has presented Montejo's collected information in detail. Recently D. H. Williams[25] and his colleagues have presented this same evidence.

Columbus sailed from Palos August 3, 1492. The Santa Maria had a crew of 60; the Nina 24; and the Pinta 30, largely sailors of fortune. It is even claimed that prison sentences were commutated on condition that the criminal would enlist for the voyage. Columbus reached the Canary Islands September 4, where he took on supplies and added to his crew. October 12 he sighted San Salvador and following this made short stops at several islands. His first long stay was in Cuba, where he remained from October 28 until December 5, 1492. He then sailed to Haiti, where he remained six weeks. On account of fear of the Indians there was little intercourse between the Spaniards and the natives until they reached Haiti. Here the sailors mingled freely with the friendly Indians. On January 16, 1493, the fleet (with the exception of the Santa Maria which had sprung a leak) sailed for home, leaving 38 Spanish colonists in Haiti. Columbus took 10 Indians with him; it is not recorded whether any of these were women.

He touched at the Azores February 15, 1493, but the Portuguese governor would not permit any of the crew to come ashore. After leaving the Azores the Nina and the Pinta became separated. Columbus on the Nina anchored March 4, 1493, at the mouth of the river Tagus, eleven miles from Lisbon. Here he took on a pilot, but none of the crew were permitted to land. He then salied to Palos, arriving March 15, 1493. From here on May 7 he proceeded overland with his Indians to Barcelona where he presented his new discovery to the king and queen of Spain.

The Pinta stopped at Bayonne in Spain, then sailed to Palos, arriving March 15 and from there to Seville where it anchored on the 31st of March, 1493.

Diaz de Isla, one of the contemporaneous Spanish writers, referred to by Montejo, was born in 1462. He studied medicine and was practicing in Barcelona in 1493[26] and later in Seville and Lisbon. He had an extensive experience with syphilis. He wrote a monograph[27] which was published in 1539, although his original manuscript is dated 1521.

He recognized the chronicity of the disease, stating that it might recur years after it had been apparently cured. Bloch claims that de Isla was the first to call attention to the value of mercury. He advised that all infected prostitutes be sent to a hospital and only permitted to resume their calling after they had been under observation and treatment for one year. He urged that hotel keepers before employing a maid should insist on a health certificate showing freedom from syphilis.

De Isla in the first chapter of his book refers to syphilis as the "dreadful new disease, as no mention was made of it in earlier books on medicine." He claimed it was brought to Spain from the Island of Haiti and made its first appearance in Barcelona in 1493. He ascribed its appearance to the sailors of Columbus. This disease, he says, had its origin and birth once for all on the island that today is named Espaniola. The sailors of Columbus were infected from this source, and as this disease was not known by the Spaniards, they attributed the pains of this malady to the hardships of the sea. He says that the disease appeared in Barcelona immediately after the visit of Columbus to that city. On account of its loathsomeness, he called it the serpentine disease from the Island of Espaniola. He refers to it as an affliction that breaks and rots the bones and disrupts and contracts the nerves. He claims that in 1504 he received in writing all the remedies used by the Indians in its treatment and he considered this evidence that it had prevailed for a long time among these people. He further states that it was disseminated throughout Europe by the army of Charles VIII, and that he treated patients with syphilis prior to the marshalling of the army for the invasion of Italy. In referring to Columbus' sailors bringing the disease to Spain, he relates that Pincon the pilot of the Pinta had a venereal sore.

Gonzalo Oviedo was born in Madrid in 1478. His father was secretary to the king of Spain. At the age of thirteen years he became page to Don Juan, the son of Ferdinand and Isabella. He later became a great traveller, crossing the Atlantic eight times. He was sent to Haiti in 1513 by King Ferdinand to inspect the melting of gold and silver. In 1535 he wrote an exhaustive treatise on the natural history of the West Indies and Central America. He relates that the Spanish colonists in Haiti suffered from a disease called bubas, which they contracted from the Indian women. He was told by the Indians that this disease had been prevalent in Haiti long before the advent of the Christians. Oviedo thought it was amusing that the Italians should refer to it as the French Disease and the French call it the Neapolitan Disease, as its real name should be the Disease of the West Indies. In fact, he states that when it first appeared in Spain it was called the West Indian Measles. He was told that the disease ran a very severe course in the Christian, but was mild in the native. Practically every Christian that associated with the Indian women acquired syphilis.

Bartholome de Las Casas[28] was born in Seville in 1474. His father accompanied Columbus on his second voyage to America. He studied for the priesthood and in 1498 went as a missionary to Haiti and later to Cuba. He also made a trip to Peru. While in Haiti he began his book on a general history of the West Indies in which he relates that two things were a source of great annoyance in this island, one a disease known as bubas, which in Italy is called the French Disease, and the other was a certain species of flea. The bubas, he said, was introduced into Europe by the sailors of Columbus on his first voyage and had been spread throughout Europe by soldiers of Charles VIII.

He frequently discussed with the Indians on the length of time this disease had been known. He was always assured that it had prevailed there beyond the memory of man. He is positive that the sailors of Columbus acquired the disease from the Indian women. He also relates that the disease was very painful and serious in the Spaniards, but ran a very mild course in the Indians.

Bernardino de Sahagun[29] a Franciscan priest came to Mexico in 1529 as a missionary. He was an excellent linguist. He studied the Aztec language and was soon able to converse with the natives. He remained in Mexico forty years and during this time wrote a history of the country. He describes two types of venereal sores, one of which later attacked the bones and often led to paralysis. He claims that the Indians were able to differentiate these sores and could determine the type that later would be followed by serious consequences. The Mexicans recognized the venereal character of the sore and its contagious nature.

Francisco Hermandez[30] physician to Phillip II of Spain was sent by his majesty in 1560 to Mexico to study and report on his observations. He remained there several years, recording and later publishing a report. He found syphilis widespread and states that there can be no question that syphilis was brought to Europe from the new world.

The opponents of the American origin of syphilis, including Sudhoff, question the value of de Isla's account of the disease, emphasizing the point that it was not written until twenty-eight years after the discovery of America.

Montejo had access to some of the old hospital reports in Seville. Beginning with 1560 a royal commission made annual reports on each hospital in the city. In one of these reports dated January 3, 1585, a statement is made that syphilis was not present in Seville prior to the discovery of America.

Montejo[31] refers to some old notes written in 1497 by one Guzman, where the statement is made that the hospital San Salvador in Seville in this year became a special institution for the treatment of syphilis.

Bloch[31] calls attention to a letter written in 1495 by Nicolaus Scyllatius, a noted scholar of that period interested in geography, anthropology and medicine. He wrote in 1494 the first account from a geographer's standpoint of the discovery of America. The letter referred to was dated June 18, 1495. At this time Scyllatius was in Barcelona. The letter was in the form of a report and refers to the sudden recent appearance of an entirely new disease in Barcelona. He describes the signs and symptoms in sufficient detail to leave little doubt that the disease referred to was syphilis.

Astruc[32] apparently had access to some of the documents mentioned by Montejo. He quotes from the treatise written by Diaz de Isla whom he calls Roderic Diaz of Isla, "The disease (syphilis) appeared in Spain in the year 1493 at Barcelona which was first infected and afterward all Europe with the rest of the known world. It took its origin in the Island of Hispaniola (Haiti) as has been found from long and certain experience." He then relates how the disease was brought to Europe by the sailors of Columbus and later spread by the soldiers of Charles VIII. "Being ignorant, however, of the name or nature of the disease . . . they called it the Neapolitan Disease, whereas the Italians named it the French Disease."

Astruc[32] also refers to a treatise on "De Morbo Gallico" written by John Baptist Montanus who was born in Verona in 1488. He claimed the disease was brought to Europe from the West Indies "where it is as frequent as itch among us."

Francis Guiciardini,[33] a citizen of Florence, who wrote a history of Italy covering the period from 1494 to 1532, in discussing the name French Disease says, "But it is no more than just to remove this reproach from the French, for it is certain that the venereal disease together with a most inveterate itch was imported from Spain to Naples. Neither indeed was it a native of this country, but was likewise imported thither from those islands which at about that time were discovered by Christopher Columbus of Genoa."

Francis Lopez de Gomara,[33] chaplain to Cortez in Mexico in 1553 wrote a general history of the Indies, "All the natives of this Island of Hispaniola are infected with the venereal disease and therefore the Spaniards who had to do with the Indian women very soon were seized with this complaint, than which there is none more infectious or more painful."

Astruc[34] calls attention to some writers including a no less distinguished physician than Sydenham, who claimed that the disease was carried to the West Indies by negroes taken from Africa to the colonies by the Spaniards. Astruc states, however, "It is certain that no blacks were transported into Hispaniola before the year 1503."

Conclusion: There is little doubt that syphilis appeared in Europe in epidemic form within a year at least after the discovery of America. It was considered a new disease. There is no evidence in ancient manuscripts or ancient bones that syphilis had existed in the Eastern continent prior to the discovery of America. There is strong presumptive evidence that it was introduced into Spain by the sailors of Columbus.

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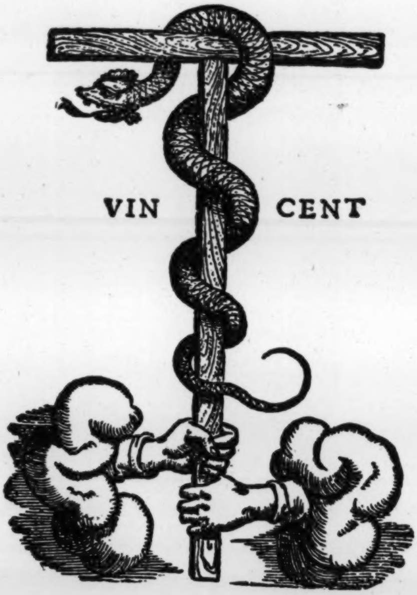

HIERONYMUS FRACASTORIUS

THE AUTHOR OF THE POEM CALLED SYPHILIS

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FRACASTOR'S principal fame lies in his celebrated poem, "Syphilis," which has never lost its popularity, as shown by the numerous translations down to our own day. One can infer from this long continued popularity what it must have enjoyed in its own day when it accorded so delightfully with the spirit of the times.

One of the objects of the poem was literary, and set forth admirably the author's familiarity with the ancient Roman language and mythology, so popular then among the learned. It also showed the author's knowledge of astrology, at that time an important matter, and it also disclosed his acquaintance with syphilis, and of the germ-borne diseases. Fracastor had an appreciation of the germ-borne diseases far in advance of his contemporaries and spoke of them in such an objective way that one might almost imagine he saw them. He had in fact an excellent scientific imagination, reminding one of the Roman poet, Lucretius.

Jerome Fracastor was born in the city of Verona in 1482, ten years before the discovery of America, and he died of apoplexy seventy-one years subsequently. In the interval he passed through a renowned and successful life, and his name was to be remembered and spoken throughout the entire world, even, as before mentioned, down to the present day.

Fracastor achieved international fame suddenly on publishing his celebrated poem, the main theme of which was to show the origin of a contagious disease that had only recently been observed by the medical profession of Europe, but which was so striking in its manifestations and affected such a great number of people that a great literature had already sprung up about it.

Strange Features of Fracastor's Poem

The strange features of this work are that it is written in verse, and that the bulk of the poem is made up of constant allusions to Roman mythology, and constant allusions to and imitations of Virgil. That the work should be written in Latin is not strange, as medical and scientific works were usually composed in that tongue then, and for long after. But the etiology of disease and the relation of disease symptoms do not lend themselves to idealistic literature; in fact there is almost nothing so prosy. There are some writers, such as Sabouraud and the late Sir William Osler, who can make these subjects lightsome reading, but this ability requires literary taste, not poetic inspiration. As Fournier has pointed out, only in one place does the poem become really idealistic, and that is in lamenting the political miseries of Italy, and they were worthy of lamentation.[1] Italy was at that time torn asunder by rival towns, by rival condottieri, by foreign invading armies, by famine and by pestilence.

As for the subject itself it would never occur to anyone now to choose it for a serious poem, but in doing so

Fracastor was only following the tendency of the age. A well known Italian poet, Sannazar, for example had written a poem on "The Lying-in of the Virgin Mary," and there were many others of the same class. Fracastor was only one of the cleverest of these writers.

The idea that syphilis might arise from an unfortunate conjunction of planets would be to us ridiculous, but in that age it seemed a perfectly natural sequence of events. It was well known and perfectly obvious that the sun and the moon, and therefore likewise the stars, troubled and corrupted the air, causing the tides, burning heat, cold, great storms of wind, rain and hail, and terrifying thunder and lightning. Other great evils such as pestilences and contagious diseases that came down on a whole people all at once, and were therefore epidemic (*epi*, upon, and *demos*, a people), evidently arose from the same source, because the air was the only freely movable, all embracing element that could spread such evils quickly over a large extent of territory. They did not know, as we know now, that the first beginnings of an epidemic are unnoticed, and that it spreads as a fire spreads, increasing as it goes, and finally gives the impression to have arisen suddenly and over a great area.

As syphilis came from the heavenly bodies an important question consequently arose as to what planets, by coming together, caused this syphilitic disturbance, and Fracastor, as a clever astrologer, felt himself able to solve this. He described Mars, coming as a blustering fellow, never in good humor and always causing trouble. Saturn also came, an elderly deity with many a pain and ache, and not at all in love with climbing, which he had to do as a celestial person, and especially out of humor on meeting his son, Jupiter, who had deposed him from his supremacy as Chief of the Gods. Jupiter was there and took the throne as his right, with a haughty air. None of them was in a pleasant humor, and not being in a position to deeply injure one another, they sent down a most distressful plague upon the poor human race.

This stellar etiology for syphilis appealed as strongly to the common sense of that age as Christian Science does to our vanity and thrift now.

According to Fracastor the etiology of syphilis was slightly different in America, where he said the disease had already lasted a long time. As these people dwelt under different stars, Jupiter, Saturn and Mars could have no influence. It was there due to the indignation of the Sun God against a shepherd named Syphilus, who rendered sacrificial honors to the king of the country instead of to the Sun. Also, in another region of the earth, at the eastern extremity of the Mediterranean Sea, a gardener was stricken by the disease by the angry goddess, Diana, because he killed her pet deer.

One can say therefore that as a poem or as a medical article Fracastor's "Syphilis" is a failure, and a medical man writing such a composition today would be considered crazy. To its author, however, it brought quick recognition from the learned and the powerful, and from first to last it is a serious and clever piece of work. Although it is largely taken up with what we now consider trivial and extraneous matters, it does contain many excellent observations on syphilis, showing that its author was a well equipped physician for his day and knew his subject.

There were some further circumstances, literary, political and economic, which also had an influence on the way the poem was received by Fracastor's contemporaries.

When the poem "Syphilis" was published, Leo x of the powerful house of Medici was in the papal chair. From his early youth he had been dedicated to the Church, having been made cardinal as a child of thirteen. He gained the head of the Papacy at the early age of thirty-six. As he and his ambitions and his associates had much to do with the fortunes of this poem a few brief remarks concerning them are important.

Leo x was the most powerful and also the most able of the rulers of Italy at that time, and Italy was the most cultured, richest, and at the same time the most distracted country politically in Europe. Leo x had one great ambition, involving two great lines of action. He wished to be another Augustus and, like Augustus, to bring order and peace into her confused affairs both by freeing Italy of her foreign dominators, French, Spanish and German, and by subduing her petty princelings, rival cities and condottiere. He also wished, like Augustus, to make Italy preeminent in art and literature. One need not recite the names of the great painters of the period patronized by the magnificent Pontiff. What in the present instance is more directly of interest to us, however, is that in his day the classics of ancient Greece and Rome were printed, studied and imitated with the zeal of discoverers by talented men, and Leo lent his powerful and efficient aid in this work. On attaining the papal chair he appointed Pietro Bembo as his secretary, who later became Cardinal, and is almost always referred to as Cardinal Bembo. He received this appointment as secretary because of his eminence in classical studies, and for long he was the literary dictator of Italy, then, as already mentioned, the most cultured nation in Europe. He wrote fluently in his native Italian and in Latin, in which he had cultivated a Ciceronian style. It was to this man that Fracastor dedicated his poem, conceived in classical Latin.

To dedicate a poem on such a subject to a prominent clergyman nowadays would be scandalous. Evidently the disease had not yet acquired the almost obligatory association with lewdness that it now has. And also it must be said that sexual laxity was not then regarded with the same severity as today, even among the high clergy, including the worthy Cardinal. Fracastor knew the disease to be transmitted in sexual congress, but the evil association in the public mind was not yet so intimate as to make the disease a social outcast. In fact it was often called the gentlemen's disease. Furthermore the spontaneous origin of syphilis as an epidemic affection was attributed generally, as already mentioned, to a malevolent conjunction of planets and was therefore, intrinsically, not regarded as a venereal complaint at all.

Cardinal Bembo's classical enthusiasm exposed him to reproach even then. He was criticised for applying the term "heros" to Christ, just as Virgil does to Aeneas, and the term "dea" (goddess to the Virgin Mary, and for speaking of Leo's election to the Papal Chair as "deorum immortalium beneficiis." (Through the grace of the immortal gods.) He even went so far as to employ the term "persuasio" for faith. This last was a most grave defection from orthodox theology. Such instances are only introduced here to show how imbued the Cardinal was with classical thought and learning, and also more clearly to indicate why he should regard Fracastor and his work with especial favor.

As recently mentioned by Dr. Rand, the attitude of the Church toward classical culture had been always double: an attitude of disapproval of pagan literature and learning was offset by one of pious preservation and enjoyment.[2] Also, as later in the Episcopal Church in England, the Roman Church then formed a delightful retreat for learned dilettanti. These were not all by any means drones or vain highbrows; some of them made and still make excellent use of their leisure and opportunities in encouraging Letters and Art, as Pope Leo x did. To be sure such men are not interested in the uglier, more squalid forms of sin: they leave the care of that to the monks, and in England to the Salvation Army.

In these circumstances therefore it was only natural that the poem, "Syphilis," by the learned physician, Fracastor, with its allusions to the ancient Greek and Roman mythology, and with paraphrases of Virgil, and written in a pure Latinity, was quite to the taste of both Cardinal Bembo and Pope Leo x, and their courtiers and friends.

Not alone were classical literature and its imitations the favorite literature of the day, but the more highly educated and clever members of the Roman hierarchy had grown tired of the Bible, even as the people of our own day have. Although vast numbers of bibles are now printed, and much is written on the Bible, and more is preached about it, yet almost nobody reads it. The taste for different forms of literature changes from age to age, and no power on earth can prevent this change.

Cardinal Bembo was also said to have dissuaded a friend from reading St. Paul's Epistles in the Vulgate, as tending to corrupt his Latin style, and he himself would never read the briefs or breviary for the same reason. It must be said in extenuation that St. Jerome, who translated the Scriptures into the Latin Vulgate, was more distinguished for his sharp temper than for his Latin style or taste.

Fracastor first sent the manuscript of his poem to Cardinal Bembo, who was ten years his senior and had, as has been stated, an assured position in Letters. The Cardinal forwarded it for perusal to the poet, Sannazar. Sannazar, having written a poem in Latin entitled: "De Partu Virginis," on which he had spent twenty years, was also a competent and interested critic. He gave Fracastor's poem the highest praise, and admitted it was superior to his own work. Fracastor had evidently taught himself to write Latin as if it had been his native tongue, a brilliant accomplishment in such a difficult language. And not alone was it written in Latin, it was written in blank verse, requiring much higher literary taste and much greater technical skill than prose or a versified jingle.

Fracastor received extravagant praise from still another quarter, from Julius C. Scaliger, who was a learned physician and author two years younger than Fracastor, and likewise a native of northern Italy. He was a profound Latin scholar as attested by his work, "De Causis Linguae Latinae," (Origins of the Latin Language), printed in 1540, which is mentioned as being the first work on philology. Both Casaubon and Daniel Heinsius said of J. C. Scaliger that he was a man of greatness unexampled, had he not become the father of a son, Joseph Scaliger, still greater than himself: "Vir incomparabilis, nisi Josephum genuisset."[3] Praise from such a man was all the greater, as Julius Scaliger was noted as acrimonious and adverse critic.

From the foregoing it would appear to be evident why the poem had such an immense initial success. It was excellently written in a medium that it was then the fashion to cultivate and it gave a common sense, easily comprehensible reason for the origin of a disease that was new and rapidly spreading, and interesting to a large number of people. Why, with all its errors and the desuetude of the medium in which it is expressed, it has continued to hold the world's ear is another question.

Undoubtedly the intrinsic merit of the poem, as a literary production, has had much to do with its persistence. Scholars, after wading through the boresome literature of the times, look upon Fracastor's writings as heart's ease. Proksch,[4] Meunier[5] and Wm. R. Riddell[6] mention this with feeling. And translation after translation has appeared, done with a care that shows what a charm literature can lend to our frequently tedious, prosy and not infrequently horrid occupation.

THE NAME, SYPHILIS

Syphilis, because of its multifarious symptoms and more especially because of its striking skin lesions and other deformities, has received a vast number of names, more than any other disease. During the five years from 1495 to 1500 it had already acquired more than 400 appellations.[1] One might think its baptism complete before the publication of the poem, "Syphilis," in 1530. The term, syphilis, however, soon became popular, and has remained so ever since. I imagine that the sound of the name has had something to do with its popularity and endurance, as it is one of the most hissing, sibilant of words in any language, more sibilant even than the word, sibilant, itself, and there may be a subconscious feeling that it accords with the viperous venomous nature of its virus. Then again the persistence of the term has likely conduced to the persistence of the poem, as in looking up the origin of the term one would naturally become aware of the poem.

The origin of the term, syphilis, has remained doubtful, and the greater the authority, such as Little or the New Oxford Dictionary, the greater the doubt manifested. All agree, however, that it was first employed by Fracastor. He certainly was clever enough to have invented it, and the derivation, *sus*, a hog, and *philein*, to love, is generally accepted. As the subject is a venereal disease there may be a tendency to have this name refer to indecent practices. There is no necessity, however, for doing this, as it would be quite contrary to Fracastor's line of thought either as shown in this poem or in his other writings. There is another explanation, however, which is natural and easy of deduction. The Greek verb, *philein*, means to tend or to care for, and *sus-philein* would mean a hog caretaker, or, with us, a swineherd. This would be quite in line with Fracastor's favorite poet, Virgil, who in his first Eclogue calls one of the characters Meliboes, *melein* and *bous*, indicating one to whom oxen and herds are a care, and therefore what we would term a cattleman, stockraiser or cowboy.

The word, syphilis, is derived from syphilus, just as Aeneis is derived from Aeneas,[8] and again shows the influence of Virgil.

It cannot be said that Fracastor showed himself infatuated with his new appellation for this disease, as of the fifteen different names he employs in the poem he only uses the word, syphilis, twice: once in the title and once in the body of the poem. In his prose work on the same subject, published sixteen years afterwards, he employs it only six times, and in three of these he supports his term by the term, French disease, which probably was the commoner one then.

Franz Boll of Heidelberg has suggested that the name was taken from Sipylus, one of the sons of Niobe. Niobe's children were laid low one after another in quick succession by arrows shot by the god, Apollo, so reducing Niobe from being one of the proudest ladies in all Asia to a totally bereaved widow. The analogy between the syphilitic virus and Apollo's arrows in Fracastor's mind would be obvious.[9]

Besides this famous poem Fracastor wrote clearly and well on typhus fever and on the plague, from which Italy suffered several severe visitations during his life. Although his etiology is disfigured by the prevalent astrology of his time, and his pathology suffers equally from the humoralistic notions then current, he speaks of germs in such a clear concise way that, as previously mentioned, one might almost think that he saw them. The way he writes on these diseases and on syphilis too shows that he had practical knowledge of his subject. The reason for this familiarity is interesting.

The economic conditions in Italy had at this time suffered a drastic change. The great commercial cities of Italy, Venice, Florence, Pisa and Genoa, had grown rich on the spice trade between Europe and the Far East across Asia. Suddenly Vasco de Gama's voyage around the Cape of Good Hope changed the direction of this trade route. Immediately on hearing of de Gama's success the Germans, for example, established a house in Lisbon, showing how alive they were to the fundamental change in trade routes. One can yet see palaces and buildings in Lisbon erected while the Portuguese retained this profitable trade, and the King of Portugal was often referred to as the King of Spices, or the Grocer King. At the same time business naturally became bad in Italy. Great wealth was still there, but it was not flowing among the people. The great western ocean, previously a barrier, now became a highway, and the commercial activity that had previously been Italy's now fell to Portugal, Spain and the great northwestern trading nations, England, Holland and Flanders. Wherever there is monetary trouble, political and monetary quacks flourish, and so it was in Italy in Fracastor's day, and they hearkened not to the voice of their great political genius, Machiavelli.

With poverty and famine and political quarrels came the Spanish, German and French armies to loot the still wealthy cities of Italy, and with these came syphilis, bubonic plague and typhus fever, and with all of these diseases the scholarly Fracastor showed an intimate first-hand knowledge.

There are other notable and interesting features in Fracastor's life. He was said to have had a remarkable memory, which we can well believe, and to have mastered many sciences, such as philosophy, for which he had a strong inclination. On one occasion he seems to have made good use of his knowledge of astrology. Pope Paul IV wished to transfer the Church Council, being held in Trente, which was under the jurisdiction of Charles V, to a city under his own sovereign power. He applied to Fracastor, who found, by consulting the stars, that they indicated a contagious disease about to fall precisely upon the city of Trente, whereat the reverend fathers willingly acceded to the desire of his Holiness to leave Trente and to hold their sessions in Bologna, which was under Papal rule. The ninth session of the council was held in this city April 21, 1547, and the tenth in June of the following year.

In Fracastor we have an example of a physician with few physical resources for the control of disease, and little concrete knowledge of its real nature and origin, and yet who had a large and remunerative practice, and a great influence over the actions, political and otherwise, of his contemporaries. Furthermore his works are read with profit and pleasure down to our own times. Undoubtedly Fracastor wrought this miracle through his literary ability.

His example should be an admonition to us not to fall into the error of being simply physical and technical experts. If we do we shall have lost something which though of intangible worth, is yet of great value.

Towards the end of his life Fracastor retired with his family to his country house at Casi at the foot of Mount Baldo, where he spent his time in studying mathematics, astronomy and cosmography. This last science had received a new impetus through the great ocean voyages of Columbus and his contemporaries.

In personal appearance he was of medium height and grave in his demeanor, with lively eyes, and affable frank manners. He was a good conversationalist, and loved music and the arts.

He died of apoplexy in his country home August 6, 1553, in his seventy-first year. It is said that on recognizing the trouble with which he was attacked he attempted to ask for the remedies, including leeches, he employed on similar occasions, but his tongue failed to act, and he could not make his servants understand what he required.

His friend and admirer, Jean Babtiste Rhamnusius, erected a bronze statue to him, and his native town of Verona in 1559 dedicated to his memory a beautiful statue of marble. Several poets, among them Julius Scaliger, wrote poetic eulogies.

He was said to have been born with too small a mouth, which had to be enlarged by a surgical operation. Julius Scaliger wrote an entertaining verse about this. It was also related that while in his mother's arms a stroke of lightning killed her, leaving him untouched. These of course may have been legends with little or no foundation, such as in that age and previously were frequently told of many noted men. They serve, however, to indicate how noted he was.

Another legend runs that when Charles v visited Italy in his march on Rome he asked to have Fracastor pointed out to him. Considering the times, it would be a great distinction to have gained the notice of one who had gathered more power in his hands than any man between Augustus, Emperor of Rome, and Napoleon Bonaparte.

From the foregoing one may obtain some perception of the difference in manner of thought now and during the time when Fracastor lived, and how it was that this poem, which now would certainly not succeed in being published, brought affluence and a European fame to its author.

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AN HISTORICAL SURVEY OF GONORRHEA*

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It is unlikely that primitive man was ever tortured by the complications of gonorrhea. He was possessed with the thought of protecting himself against his enemies and the acquisition of food. Later on, he learned to fraternize with his brethren, founded communities and had time for contemplation, particularly concerning the selection of his mate. The first evil of this primal society was prostitution. In order to checkmate man's proclivity for promiscuity, nature engrafted virulence into one of the harmless cocci of the vaginal tract. Thus the gonococcus came into existence as a penalty for those who strayed.

It is extremely difficult to trace specific urethritis through the ages, because it was generally regarded as a nuisance rather than a disease. Clap was accepted as an inevitable occurrence and since it caused little constitutional disturbance, was generally disregarded. Syphilis on the contrary is far easier to investigate because of the indelible mark it has left on the skeleton. Paleontologists who have unearthed and studied the bony remains of extinct tribes, have found evidence of skull gummas, syphilitic periostitis and other leutic changes which enable them to unmistakably identify the disease. The gruesome appearance of the secondary and tertiary lesions have always unduly impressed the laity, and our earliest medical records are replete with tales concerning the great pox. In contradistinction, gonorrhea was the common disease and since no one apparently died from it, little attention was paid to it.

The monuments of old Egypt permit us to learn some of the intimate secrets of a cultured people who thrived more than 5000 years ago. A relief on the walls of the Necropolis at Saqqarah, depicts pictorially a circumcision. Here is portrayed a youthful patient, his hands being held by an assistant, while the operator makes the initial incision. To prevent any mishap, the surgeon cautions the assistant to hold him firmly, lest he faint. The circumcision was often performed on young adolescents to relieve a congenitally tight foreskin, it was also employed in cases of acquired phimosis, rather good evidence that the social plague did attack the subjects of Pharaoh. Another avenue of approach to the secrets of historic Egypt is the papyrus of Ebers, a medical tract written about 1600 B.C. It mentions inflammation of the urethra and recommends remedies to relieve it; but nothing is said of gonorrhea. We cannot therefore positively malign the inhabitants of the Nile with this taint, but neither is it likely that such a cultured people escaped the sins of society.

Gonorrhea was no mysterious affliction to the writers of the Mosaic code. The prophets knew their venereology so well that even in spite of scientific advancement, the Bible remains the classic on illnesses of sexual origin. Biblical Jews knew that a urethral discharge resulted from intercourse with an infected female, an idea totally foreign to all other contemporary people. They regarded gonorrhea as a distinct affection, a debated subject with medical men for centuries. Circumcision was inaugurated as a national custom under the auspices of religious practice, and the sagacity of removing the prepuce on the eighth day is now universally recognized. Intercourse with a menstruating woman was strictly forbidden and the wisdom of this edict was not appreciated until recent studies which have shown that gonorrhea is most likely to be contracted during the menses, the virulence of the coccus being heightened at this time. The system of isolating the infected such as was practiced during the world war, was employed. Rest and baths comprised the principal method of treatment, which allowed a natural immunity to develop.

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What did the ancient sinner of Israel do to remedy his plight? Was he, deprived as he was of modern equipment and chemicals, condemned to endless suffering? Oddly enough, he very likely got well, in the usually alloted time. That economic condition, the struggle for existence, was not the watchword of the hour. Men lived close to nature and were strong. By enjoying the benefits of rest and elimination, they undoubtedly gained sufficient immunity to arrest the disease and allow it to run its natural course.

In studying the Ayurvedic system of medicine, the Hindu's medical cyclopedia, we learn that the early inhabitants of India were not immune to genitourinary diseases. In a fantastic phraseology, characteristic of the country, seven varieties of scrotal enlargement are described. These were termed, "wind born" (inguinal hernia), "bile born" (abscess of the scrotum), "phlegm born" (gonorrheal epididymitis), "blood born" (hematocele)," born of the adeps "(elephantiasis), "born of the urine" (hydrocele), "born of the intestine" (inguinal hernia). The Hindus employed urethral injections but relied mainly on very peculiar diets, magical pseudo-science and invocation.

FIG. 1. CIRCUMCISION AS PRACTICED IN ANCIENT EGYPT. (AFTER SUDDARTH.)

Classic Greece and Rome have left sufficient literature to permit us to gain an insight into the intimate affairs of her people. Our first informatory source is Hippocrates (460–370 B.C.) who tells us that there were five types of leucorrhea. He ascribed urethral discharge in the male to ulcerating tumors within the canal. We learn from Celsus that sexual diseases were covered with a veil of secrecy for he writes, "It is desirable to disseminate among the people some medical principles with regard to a class of diseases which are never revealed to anyone." He believed that abscesses discharging within the urethra accounted for the pus. Herodotus writes, "The Scythians made an irruption into Palestine and pillaged the temple of Venus Urania. The angry goddess sent upon them and their posterity, the women's disease, which is characterized by a running from the penis. Those attacked by it are looked upon as accursed." Galen (131–201 A.D.) originated the term gonorrhea which is derived from *gonus* meaning seed and *rhoea* implying a flow; for he considered the discharge to be an involuntary leakage of semen. Every physician or healer had his personal conception of urethritis, though it seems that none attempted to prove his contention. They did not associate indiscriminate intercourse and disease. Since they supposed that disease could be cured by specific gods, a scientific approach to this problem was precluded. Philosophy rather than clinical investigation established their basis of reasoning. Dissection was an art that was little practiced.

Aretaeus the Cappodocian (2d to 3d century A.D.) has left a description of gonorrhea as it appeared to the best minds of his time. He wrote:

> Gonorrhea is not, indeed, a deadly affection, but one that is disagreeable and disgusting even to hear of. For if impotence and paralysis possess both the fluid and genital organs, the semen runs as if through dead parts, nor can it be stopped even in sleep; for whether asleep or awake the discharge is irrestrainable, and there is an unconscious flow of semen. Women also have this disease, but their semen is discharged with titillation of the parts, and with pleasure, and from immodest desires of connection with men. But men have not the same prurient feelings; the fluid which runs off being thin, cold, colourless and unfruitful. For how could nature, when congealed, evacuate vivifying semen? And even young persons, when they suffer from this affection, necessarily become old in constitution, torpid, relaxed, spiritless, timid, stupid, enfeebled, shrivelled, inactive, pale, whitish, effiminate, loathe their food and become frigid; they have heaviness of the members, torpidity of the legs, are powerless, and incapable of all exertion. In many cases the disease is the way to paralysis for how could the nervous system not suffer when nature has become frigid in regard to the generation of life? For it is the semen when possessed of vitality, which makes us to be men, hot, well braced in limbs, hairy, well voiced, spirited, strong to think and to act, as the characteristics of men prove. For when semen is not possessed of its vitality, persons become shrivelled, have a sharp tone of voice, lose their hair and their beards and become effeminate, as the characteristics of eunuchs prove. Vital semen, then, contributes much to health, strength, courage, and generation. From satyriasis a transition takes place to an attack of gonorrhea.

This conglomeration of symptoms, partly pathognomonic of specific urethritis, impotency, sexual neurasthenia and eunuchoidism are included under the title of gonorrhea, for every complaint connected directly or remotely with the genitalia was considered as such. Prostitution was so generally practiced at this time that we might very well premise that gonorrhea occurred proportionately. Thorndike quotes Salvian, a Christain clergyman, who states that the Vandals did away with public prostitution in Roman Carthage. Gibbon writes, "We may easily discover that Tacticus indulges an honest pleasure in the contrast of barbarian virtue with the dissolute conduct of the Roman ladies." Colon bacillus infection of the urethra must have been a common occurrence for many were addicted to paiderastia. Those upon whom this perversion was practiced, suffered as is usual in such cases, from prostatorrhea, spermatorrhea and neurasthenia.

But before we become too severe in our arrangement of these medics and their stupid diagnoses, let us consider their status. Rome got along without physicians for 600 years but when she conquered Greece, numerous medical adventurers made their way to Rome where they opened booths on the streets and practiced charlatanry in its crudest form. The few competent physicians were overshadowed and outnumbered by the vast horde of quacks, and it was not until the edict of Antoninus Pius that a law was enacted which required medical practitioners to submit satisfactory proof of their qualifications. Allbutt states, "Physicians, at any rate down to the Empire were not a professional body, scarcely a specific group, good and bad, instructed and uninstructed, free man and slave, reputable and disreputable, straight and crooked, honest and profligate."

Therapeutically the venereal affections were poorly managed. Bathhouse attendants became self-styled practitioners. There was intermingling of the sexes in the baths, a practice conducive to a substantial venereal rate. The motive of treatment was to prevent the semen from discharging and baths were ordered in the frigidaria so as to freeze the secretion. Certain wines with alleged curative virtues were also prescribed.

Arabian medicine made commendable contributions in the field of chemistry and pharmacy but added little in the domain of venereology. Of their many clinicians the names of Rhazes (860–932), Avicenna (980–1037) and Moses Maimonides (1135–1204) are preeminent. Maimonides described the symptoms of urethritis in the following lines: "The fluid escapes without erection and without a feeling of pleasure; the appearance of the discharge is similar to that of barley dough dissolved in water or coagulated albumin, and is the result of an internal disease; it is essentially different from the seminal fluid and mucus, the latter being more homogeneous." A host of over 1400 drugs was employed by physicians. Some common sense philosophy mixed with a goodly measure of Arabian humor, comprised their essential remedial agent.

By the year 1200, it was generally known throughout Europe that gonorrhea was caused by sexual contact with an infected female. Laws were passed to curb licentiousness. Falck writes, "In the ancient records of 1375 and 1390 we find that public stews and brothels of common wenches were publickly tolerated, under certain regulations, in Southwark; and we find amongst the many regulations made, that such wenches as had the burning, were to be separated from the rest, and forbid to lie with any man, whilst she had it." Another ordinance concerning a disreputable house at Avignon and dated 1347 reads, "The Queen commands that the superintendent and a surgeon appointed by the authorities examine, every Saturday, all the whores in the house of prostitution. And if one is found, who has contracted a disease from coitus, she shall be separated from the rest and live apart, in order that she may not distribute her favors, and may thus be prevented from conveying disease to the youth." Lacroix tells us that the prostitutes of Paris in the Middle Ages were quartered in domiciles known as *clapier* from which the term clap is derived, a vulgar but accepted designation for gonorrhea.

Following the discovery of America, syphilis became so prevalent in Europe, that it was regarded as an epidemic. One group of physicians held to the opinion that the new disease was imported from America by Columbus' sailors, while an opposing minority considered the sudden increase of syphilis merely as an acute exacerbation of a dormant condition. At any rate, gonorrhea temporarily received but slight consideration and all efforts were bent to curb the ravages of lues. There were many who considered gonorrhea and syphilis as one disease, the urethral secretion being considered as the forerunner of syphilis. Unfortunately every patient with urethritis was given a thorough course of mercury.

At the beginning of the seventeenth century anatomists began to focus their attention on the generative organs, to ascertain the morbid changes induced by venereal affections. Sylvius (1614–1672) pointed to the prostate as the seat of gonococcal infection, while Blanchard believed the seminal vesicles were also involved; Regnier de Graaf (1641–1673) believed the infecting site was the prostate and testicle; Cowper (1666–1709) looked upon the small urethral glands which bear his name, as the underlying cause. Musitanus (1689) considered gonorrhea to be an inflammation of the urethra. Littré (1700) studied urethrae in the dead house and reported the finding of tiny red spots on the urethral mucosa of those who had a recent urethritis. Terraneus, Cockburn and Morgagni almost simultaneously and independently, described the depressions on the dorsal mucosal surface, which are generally known as the lacunae of Morgagni. In 1715 Cockburn published the statement that gonorrhea was not usually followed by lues.

Measures to prevent infection were also devised and practiced. Fallopius and others recommended urination after exposure and washing the penis with urine. Boerhaave advised washing the glans with cold water. Lanfrancus introduced chemical prophylaxis and prescribed a local application of vinegar water. The facts concerning the introduction of the condom are rather indefinite. History tells us that a Dr. Conton, an Englishman, invented a protective sheath made from the sheep's cecum for covering the penis. Instead of showing their gratitude, the people so ridiculed him, that he changed his name to Cundum, which explains the origin of the present word condom. Robinson writes, "Prof. Blaschko of Berlin has publicly stated that Dr. Condom deserves a monument, as without his little invention all civilized races would probably by this time be completely syphilized." A. Myerhof has a different version. He believes that the word is derived from the Latin *condus*, meaning, to protect.

Useful therapy also had its inception at this period. Turquet de Mayernne used injections which reduced the period of incapacity. Copaiba was introduced by Turner in 1729, cubebs by Crawford in

1818 and sandal wood oil by Henderson and Panas in 1865. Sydenham aided the popularization of the balsamics. Silver nitrate was recommended by Carmichael in 1818 and potassium permanganate by Rich in 1864. Theden (1714–1797) developed the elastic bougie and Stoll (1742–1787) discovered that the prostate could be examined per rectum. The first abortive treatment was attempted by Musitanus in 1701. Janet extolled the virtues of irrigation in 1892. Desormeaux presented his endoscope in 1865.

Despite these advances the medical world was in a state of confusion and became divided into two factions; the identists and the non-identists. The former, led by John Hunter, claimed that gonorrhea and lues were but different stages of the same affection. To settle the problem Hunter inoculated himself with gonorrheal pus. Three months later an ulcer developed on his tonsil and in another three months a pustular eruption appeared on his body. From this experiment, he concluded, that gonorrhea and syphilis were but different stages of the same disease. Despite the spectacular and sensational side of Hunter's supposed monumental dedication of himself to science, scientific progress was halted for sixty years, and it was not until the advent of Ricord that physicians were able to conscientiously treat the venereal maladies. We now know that the person from whom Hunter took the pus for his autoinocculation, must have suffered from an intraurethral chancre as well as a urethritis. There were a few however who dared to doubt Hunter, and among those who had the temerity was Benj. Bell who propounded a list of questions for the identists to answer. Bell reasoned that if both diseases were similar, then syphilis should be very common. A few years later, Ricord, termed by Oliver Wendell Holmes the Voltaire of pelvic literature, appeared upon the scene and as the result of several hundred inocculations carried on between the years 1831 and 1837, definitely proved the non-identity of the diseases.

No sooner had this question been settled when another perplexing problem arose. If gonorrhea and lues are separate, what is the cause of gonorrhea. Again the profession was divided into two camps; the virulists who believed that gonorrhea was not a trifling affection and the non-virulists, led by Ricord who contended that gonorrhea might result from irritation, prolonged sexual excitement and other causes. The solution of this enigma was begun in 1675 when Leeuwenhoek used a microscope and was further developed in 1683 when he described bacteria. In 1710 Deidier wrote, "I believe that the venereal virus consists of nothing else but living maggots, which produce ova by copulation and which readily multiply as do all insects." Ellis in 1771 prophesied the essential difference between the diseases when he wrote:

> . . . that the virus of Pox, and that of Gonorrhea are of a very different nature, as it is well known that no Pox in the slightest degree was ever cured without Mercury; yet I can produce great numbers who have had the most virulent Gonorrheas cured without one grain, neither internally or externally; and to ascertain the truth of what is advanced, we must judge from the effects we find by experience, and draw our conclusions from thence, when we cannot so clearly illustrate it by ocular demonstration.

In 1837 Donne isolated the trichomonas from the vagina which he believed to be the pernicious agent in gonorrhea but on further investigation admitted that the organism was but a normal inhabitant of the vaginal tract. Weigert stained bacteria in 1871, Albert Neisser of Breslau identified the gonococcus in 1879, Bumm obtained a pure culture of the organisms in 1885 and in 1886 Roux formulated the differential staining with Gramm's iodine. In 1872, Noeggerath, a clinician, published a monograph on the relation of pelvic peritonitis in the female, to gonorrhea. This noteworthy contribution was made before Neisser discovered the diplococcus.

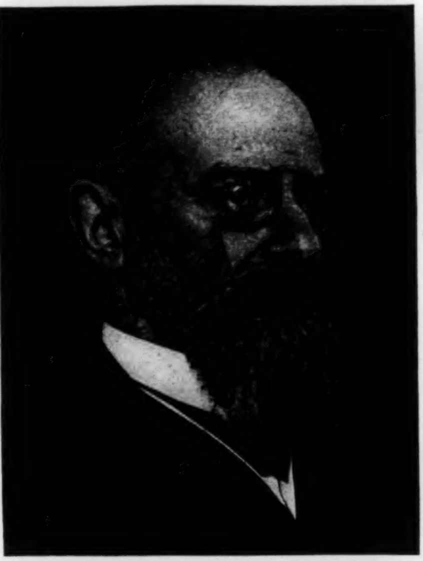

FIG. 2. ALBERT NEISSER OF BRESLAU, WHO DESCRIBED THE GONOCOCCUS IN 1879.

The nomenclature for gonorrhea has also undergone a varied transition. Gonorrheal urethritis was known to our medical forefathers as profluvium seminis, urina purulenta, gonorrhea non-Gallica and gonorrhea non-virulenta. Swediaur introduced the term blenorrhagia. Other semi-official designations are specific urethritis and urethritis neisseriae. Each century also brings a new group of common names. In the seventeenth century it was called the French disease, English disease, clap, Krinckham's, disease à la mode, fashionable disease, pretty disease, noble disease, gentile disease and the common disease. Today, the terms used, are: dose, clap, strain, set-up, gleet, and dripper. Among the colored race, the designations, runnin, range and gony, are employed.

In 1897, the first proteinate of silver, a product of the German school, was introduced. This remedy largely displaced the use of silver nitrate which was frequently used in too concentrated solution and by its escharotic action was producing strictures and other complications. In 1902 the mild proteinate of silver was introduced and Hille perfected a white colloidal silver which was stainless. Neutral acriflavine, an aniline stain was introduced in 1917 and has been found to have definite value. Hundreds of worthless gonococcides have been introduced and exploited during the past thirty years. Clever advertisements have always convinced a goodly number of physicians that the new drug was the long sought for panacea. Medical men thought since science was making such rapid strides, that some day some one would perfect a chemical which would kill the gonococcus without pain or effort. As yet such a substance has not been evolved and the few time honored reliable silver salts are still employed. Chemistry alone cannot answer the urologists' prayer. The ubiquitous gonococcus has a propensity for traveling to the utmost recesses of the urethra and it necessitates all the art a venereologist possesses, to root the germ out of its lair.

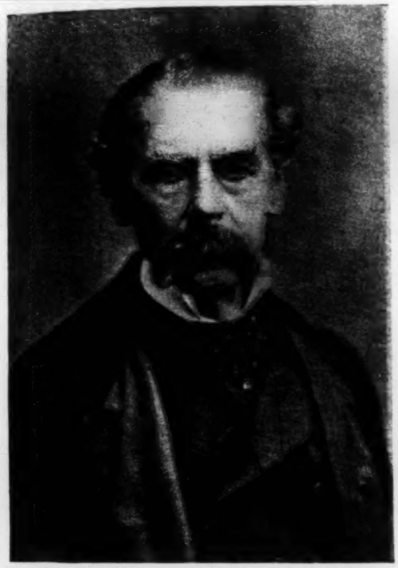

FIG. 3. SIR HENRY THOMPSON, WHO DEVELOPED THE TWO-GLASS TEST.

Gradually the mode of treatment has been elevated. In the old days patients were treated with disdain and many a venereal patient was driven to the druggist or quack by reputable physicians who refused to be bothered with clap and the like. Patent medicines were consumed internally, externally and eternally. Some physicians who treated gonorrhoics were very brutal and believed that venereals deserved pain and discomfort. Today this barbaric idea has been replaced by the urologic dictum, the patient must not suffer needlessly. We are greatful to such clinicians as Thompson, Guyon and Finger who established the rationale that the urethra deserved to be treated with the same consideration as the eye. Specialism was coming into vogue at this time and a corps of good venereologists was developed. In America, Keyes, Otis, Fessenden, Robinson and Belfield are but a few of the illustrious pioneers who convinced the world that gonorrhea was a serious disease.

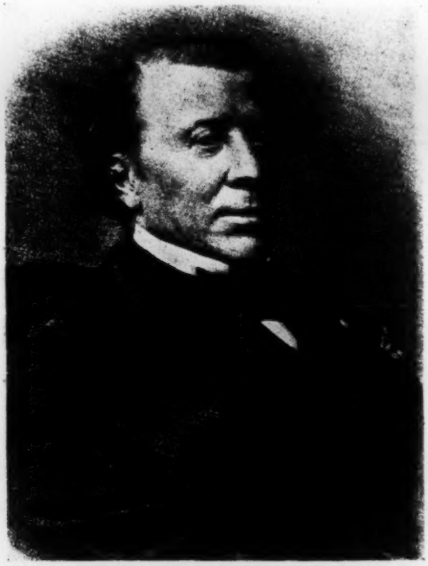

FIG. 4. M. RICORD, WHO PROVED THAT GONORRHEA AND SYPHILIS WERE SEPARATE AND DISTINCT DISEASES.

During the past three decades many novel devices for summarily exterminating the ubiquitous diplococcus have been tried and found wanting. No one has been able to materially shorten the course of the disease, though we have made considerable progress. Complications have been materially reduced by refraining from instrumentation and irrigation during the acute stage and by avoiding other methods which lower tissue resistance. Sounds are now employed with the utmost discrimination. Biochemists have taught clinicians to treat tissues with respect. Innocent infections have largely disappeared since we have learned to cleverly obtain a history.

After the endoscope became highly developed and the inflamed gland ducts could be viewed, it was thought that the infecting foci could be destroyed by burning them out with a fine electric wire. Though some are still employing this form of treatment, the writer has proved that the finest wire cannot be directed into the tortuous microscopic ducts hidden from sight. Therefore this therapy can only harm the urethra.

Perhaps the most outstanding contribution has been the use of foreign protein therapy in the treatment of the complication. Finger, Gohn and Schlagenhaufer in 1895 noted that an infectious fever altered the course of a gonorrhea. Bruck and Sommer in 1912 employed a polyvalent gonococcus vaccine intravenously in the treatment of specific arthritis. Since then many clinicians have employed typhoid and other vaccines intravenously for similar purposes and have obtained excellent results. Milk injections have been used intramuscularly though its effects are less striking than those which produce a shock. The surgical treatment of epididymitis has been reduced 50 per cent, since the judicious use of vaccines. Miller, Peterson and Culver did much to popularize foreign protein therapy in America.

There has been a continual betterment in the attitude of the profession and the public in regard to gonorrhea. Special journals are now devoted to venereal afflictions and certain hospitals are specially equipped to handle this work; a marked contrast to the day when a man with a discharge couldn't get into a reputable hospital without a lot of influence and money. Our social hygiene societies have by aid of pamphlets, lectures, movies and advertisements, disseminated true information concerning sexual diseases and today no one can say, "I wish I had been told." People now talk about such matters without horror for the modern novel, plays and sermons are constantly warning about the evils of youth. A voluminous literature on gonorrhea has been developed and a large number of texts have been written, but for clearness, simplicity and manner of presentation, none has exceeded that 87 page classic written by H. Oppenheimer in 1910, and which now unfortunately is out of print.

What hope is there that in the future, gonorrhea will eventually exterminate itself? Probably none! Gonorrhea is as old as civilized man and, judging by its ever renewed virulence, is as new as the present day. During that long period the human race has failed to develop any immunity toward it, ample reason to suppose that the characteristics of the germ remain unaltered. Sexual misery arose during the dawn of civilization and there is every likelihood that it will be with us until the millenium.

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ARETAEUS THE CAPPADOCIAN

HIS CONTRIBUTION TO DIABETES MELLITUS*

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AMONG the medical authors of the early days of the present era, two names readily come to mind, those of Celsus and Galen. The works of these masters of medicine have left a deep impression, which has lasted even unto this day. Somewhere, either between these two, or contemporaneously with the latter, lived and wrote another medical scholar, of whom it has been said that "He left descriptions of disease not excelled, until his day and for a long time thereafter, for completeness of description and clarity of thought." This was said of Aretaeus, the Cappadocian. Neuberger introduces him with these words: "Ideal and reality meet in this epoch in the masterpieces of a much discussed author, of whom we know with certainty, only that he lived in one or the other of two periods, yet left works which exerted great effect on succeeding ages."

As early as the third century B.C. Greek physicians and midwives began to wander to Rome. Among these early disciples of the Hippocratic art, many were lured to Rome by the spirit of adventure and the opportunity for riches, for the art of healing was well rewarded in Rome at that time. The Hippocratic teachings at first were well received, but soon fell into disrepute because few of its disciples were worthy of emulation. Archagathas, 219 B.C., because of his skillful treatment of wounds, rose to high honors. When he ventured out of his field, the repair of wounds, and essayed major operations of other types, his recklessness in cutting soon brought upon him the derisive title "Carnifex" and upon Greek physicians much disfavor. It was Askelepides of Prusa (b. ca. 124 B.C.) trained in rhetoric, philosophy and medicine, the friend and companion of Lucius Crassus, Mark Antony and Cicero, who finally implanted in Rome true Hippocratic medicine, which now, through the teachings of a master, quickly supplanted the Roman medicine founded largely on mystery and superstition. A century later we come to Celsus and Pliny, the younger. Comparatively little is known about Aretaeus; even the exact period of his activity is in question. He mentions no medical authorities except Hippocrates, and is not named by any contemporaries. In fact, the first record of him is found in the writings of Aetius of Amida, who lived in the sixth century. He quotes him frequently by name. Medical writers who lived about the time when Aretaeus was active were Celsus and Galen. Celsus (30 B.C.–30 A.D.) in all probability preceded Aretaeus, but no mention of the prolific compiler is found in the works of the Cappadocian. Galen (b. 131 A.D.) was either a contemporary colleague or lived after him. There is great similarity to be found in the writings of Galen and Aretaeus. Both use Hippocrates as a model and have a partiality for the philosophy of Plato. They show a better knowledge of anatomy than do any known writers of the period. Both display marked similarity in their therapy. They describe various types of the pulse in almost the same terms. Philologists point out that they differ in one striking manner. Galen wrote in the Greek of his day, the Attic Greek of Xenophon. Aretaeus' known works are in Ionic Greek, which was used by Hippocrates but which was long out of common usage when he wrote. This difference may, or may not, mean that they were contemporaries. It seems to have been a rather common practice for writers of that period to have used one form of Greek in some of their writings and another in other works. Lucian, the satirist and Artian (100 A.D.) did it. Aretaeus quotes only Homer of all the poets and he wrote in Ionic Greek. Galen quotes the later dramatic poets who wrote mainly in Attic Greek. With his great respect for Hippocrates, it seems that Aretaeus may have used the Ionic style in conformity to a rather common practice of physicians and historians of that period to copy Hippocrates and Herodotus, who wrote in Ionic Greek. Whatever be the reason, it presupposes upon the part of our author a careful and thorough study of the language of a past age.

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* Read before the Osler Historical Club of the Medical and Chirurgical Faculty of Maryland.

That Aretaeus and Galen do not mention each other cannot be taken as evidence that they were not known to each other. They may have been rival practitioners. Rivalry was quite common among medical men of the age. Or, we may be dealing with another example of a custom quite common a short time before, in the age of Quintilian, when it was uncommon for living writers to quote any of their contemporaries by name, probably because they felt it was impossible to form an unbiased opinion on their work ("sine angor aut studio"). Dioscorides, the founder of Materia Medicae and the elder Pliny were contemporaries, the former a prolific writer and the latter a great compiler. Both wrote many works and often discuss the same subjects, but neither names the other. It may be that "the fame of him who dominated medical thought for fifteen centuries, as did Aristotle, the schools," Galen, overshadowed our author. Considerations of this kind make it seem probable that Aretaeus lived during the first half of the second century and in Rome.

Aretaeus is always described as "The Cappadocian." This suffix indicates that he was a native of Cappadocia which was, at his time, one of the far eastern provinces of the Roman Empire. Previously, in the days of Herodotus, Cappadocia was a large country extending from Mt. Taurus to the borders of the Euxine Sea, and from the lower Halys River (R. Kizil Irmak) to the Euphrates. It was an independent kingdom until it was conquered by the Persians during the reign of Alexander the Great. They divided it into satrapies, one on the coast of the sea, Pontus, and an interior one, Cappadocia. In 17 A.D., the latter was conquered by the Romans and it became a province of the Roman Empire.

We know nothing of the education of Aretaeus; in fact our knowledge of the man himself is so slight that we cannot say definitely where he received his education. It is thought that he studied at Alexandria and that he spent some time in Egypt. He mentions that country by name and describes some diseases as being common there. When he came to Rome we do not know, but he is familiar with the better known wines of Rome of the second century, the Falernian, the Fundian and the Sequine and recommends them. His use of the Ionic dialect and the fact that he places the major emphasis on the pneuma, place his time in the second century. This is borne out by his emphasis on the "Pneuma," the spirit. The doctrine of the Pneuma goes back to Hippocrates, but it did not become the basis of a School until much later. Athenaeus of Sicily (ca. 50 A.D.) may be regarded as the founder of the Pneumatic School, which added the pneuma to the four elementary qualities of the older schools and made it the source of life. Disease was due to some change of the pneuma. The bright light of the Pneumatic School was Archigenes of Apamea (100 A.D.), a well known physician during the time of Trajan. He brought the School to its greatest heights. Aretaeus is classed as a member of the Pneumatic School. Some discussion has arisen as to the place due Aretaeus in medicine, because of the similarity which has been noted between his works and some fragments of the writings of Archigenes found sometime ago. Wellman believes the latter to be the source of much of the material which has been ascribed to Aretaeus. But, most all medical historians agree with Neuberger when he says "No one Grecian author after Hippocrates of whom we know, reaches the heights of Aretaeus, and no work in the whole literature approaches so closely the true Hippocratic spirit in description of disease and viewpoint of Therapeutics as do these books of the Cappadocian." Whatever the future may bring to light as to which one, Aretaeus or Archigenes borrowed from the other, the classical and clear descriptions of disease and the uncomplicated and conservative therapy which have come down to us under the name of Aretaeus, place the author upon true Hippocratic heights. These show a mind undisturbed by conflicting systems and schools, unwilling to sacrifice itself to fanciful theories or indulge in useless speculations, yet giving clear, concise pictures of disease and its treatment based upon sound thought and great experience.

It seems strange that these classical presentations of disease which we now have, should have been so little known or quoted during a period of more than one thousand years. In explanation, Adams points out that the medical writings of Roman authors after the second century, for a period of several centuries, show little indication of any research on the work of former ages. Whatever the reason, we find the first trace of our author in the works of Aëtius of Amida, physician to Justinian I (527–565), who quotes Aretaeus frequently. Alexander of Tralles, who lived about the same time, knew the writings of Aretaeus. So did Paul of Aegina (625–690). All of these were compilers and systematizers of the medical knowledge of the preceding ages. Following this group, there pass almost a thousand years during which no trace is to be found of Aretaeus. In this long period, Roman medicine was barren. The Arabian School rose and declined. But this School drew its knowledge of the medicine of Greece and Rome from the compilations of Aetius, Alexander of Tralles, Paul of Aegina and Oribasius. It did not go back to the original sources. Wigan believes the fame of Archigenes, the bright light of the Pneumatic School, perhaps overshadowed our author. Likewise, the School of Salernum was founded and passed its period of fame. Bologna and Montpellier and other universities were increasing the knowledge of anatomy and physiology and dissecting human bodies. Yet there is no trace found of the Cappadocian.

The art of printing was invented about the middle of the fifteenth century. It greatly aided that great rebirth of knowledge, which we call the Renaissance. So we find the earliest printings of the authors of antiquity appearing about the beginning of the sixteenth century. The first edition of the Works of Aretaeus was published at Venice in 1552 by Junius Paulus Crassus. It is in Latin and in the preface of the volume, the editor states that it "is a translation into Latin of an old and worm-eaten book written in Greek, which accidently has fallen into my hands." He does not give the title of the book but continues: "the margins of the pages of the old book had many notes written in Latin on them by former possessors, not in Greek as was the text." Several chapters of the old book were missing from Book II on the Treatment of Chronic Diseases. The translation was made by a scholar and was evidently based upon material now unknown.He, however, did not have the advantage of the several Codices which have come to light since then. This edition was reprinted at Paris in 1554 by Wm. Moriel and James Putanus and at Frankfort in 1587 in the Medicae Artis Principis edited by Henricus Stevenus from the work of an unknown author.

The "Edita Princeps," the first edition in Greek, was published at Paris in 1554. It was edited by Jacobus Goupylus and printed by Adrian Turnebaum, the famous printer to King Henry II of France. It was based upon a Greek manuscript in the Royal Library at Paris, and contains the chapters missing in the Crassus' edition. It is a very finely put up edition, but suffers from faulty punctuation and the addition of many conjectural readings which sometimes make the text almost impossible to understand. In the same year, Goupylus brought out a Latin edition, based upon the Crassus volume above mentioned. In 1581, Crassus edited a revised edition in Latin, which contained the chapters missing in. his first edition. It was printed by Peter Pernam.

The first Greek-Latin edition to be published was edited by George Heinisch and printed at Augsburg by Augustus Vindelicorum in 1603. It is based upon three old Codices, the Venetum, the Bavaricum and the Augustaeum. It is not a very good edition. However, the next Greek-Latin printing is quite different. It was edited by John Wigan, dedicated to Dr. Freind, the friend of Dr. Richard Meade, and printed by the Clarendon Press at London. It is based upon two manuscript Codices, one in the Vatican Library at Rome and the other, the Harleyean, in the Bodelian Library at Oxford. Because of its careful printing and its full notes and emendations, it is a most excellent edition, although marred somewhat by numerous text errors. Boerhaave tells us that only 300 copies of the book were printed.

The next edition was published under the direction of the famous

Dr. Hermann Boerhaave, edited by Johann van Groenwald, and printed by Janson Van der Aa at Leyden in 1731 and reprinted in 1735. It is an edition in Greek and Latin, the former based on the Wigan edition and the latter on the Goupylus edition of Crassus' publication of 1581. Besides the text, it contains the complete Commentaries of Peter Petit, doctor of Paris (b. 1662). These were written about 1692 and Adams states that "one can scarcely overrate the value of his contribution" since they are "the most ingenious and judicious labors ever expended on an ancient author, not excepting that of Foes on Hippocrates." Besides these Commentaries, the book contains an Index to the Greek text made by Maittaire, a famous classical scholar of the time; an Appendix, "Variae Lectonis," of the various editions and Codices; Conjectures and Emendations by Daniel William Trilleri on the Leipzig edition of 1728; and finally, a Latin Index to Diseases and Drugs. Boerhaave had already edited editions of Hippocrates and Galen and was preparing to edit Aretaeus when he received "from that famous and renowned Richard Meade," a copy of the Wigan edition of Aretaeus. Of the many other editions of the Works of Aretaeus which have appeared since the edition of 1735, I should like to mention but two. The first is the Greek-English edition of Francis Adams, published by the Sydenham Society in 1856. It is an excellent work, especially as the English translation makes it available to many more readers. I am indebted to this edition for much of my material. The other is an elaborate and excellent edition by the Danish philologist, Karl Hunde, published in Greek-German, as a part of the monumental "Corpus Medicorum Graecorum" by Tuebner in Leipzig in 1923.

The works of Aretaeus which we now possess are comprised in four books, "De causis et signis Acutorum Morborum" (On causes and signs of Acute Diseases), "De causis et signis Diutunorum Morborum" (Chronic Diseases) and four books of Therapy of Acute and Chronic Diseases, each in two books. There are fifty chapters on Causes and Signs and forty-three on Therapy; the treatment of cholera, mania, paralysis, phthisis, empyema, dropsy and colics are missing, but the descriptions of these diseases have come down. Besides these books, Aretaeus mentions works on fever, on surgery, on gynecology, on prophylaxis and on pharmacy, of which no trace can be found.

He treats of many conditions, but especial emphasis should be placed on his description of pleurisy, with empyema, penumonia and phthisis, the paralytic states, tetanus, epilepsy with its preceding aura, hysteria, cholera, certain affections of the throat (diphtheria), jaundice, edema, gout, ischialgia, leprosy, diabetes and various intestinal, hepatic and vesicular diseases. Of all of these he has left masterly descriptions. Of course these terms do not always mean for him that which we understand by them today. His chapters may indicate symptoms, groups of diseases or an entirely different concept than we have today. Heart disease is discussed by him under "Syncope." "De Jecoris" includes several diseases of the liver and likewise kidney diseases are "De Renum acutis affectibus."

What views did Aretaeus hold? He believed the body was made up of humor, spirit (pneuma) and solid constituents and that health and life depended upon the proper interplay of these constituents. He recognized four humors, the same as did Hippocrates, the blood, the phlegm, the light bile and the dark bile. Blood is formed in the liver from the food taken. The phlegm is secreted by the brain and descends to the other organs. Light bile comes from the liver, while black bile is made by the spleen.

To him, the heart was the most important organ of the body. "What other organ is more important?" he asks. It is the site of animal heat and of the spirit (pneuma), the source of respiration and of life. It draws the pneuma from the lungs, which are dependent upon the heart. The aorta arises from the heart and lies to the left of the vena cava in the body. It (the aorta) carries out the pneuma to the other organs. The veins carry the blood to all parts as nutriment.

The liver is the point of origin of the veins. It is composed largely of blood; it produces blood and bile. Inflammations of the liver produce jaundice, caused by the obstruction of the bile ducts.

The lungs are of spongy texture and without feeling. The pain of Pneumonia is due to the covering membrane being affected.

The kidneys are true glands which contain cavities, like a sieve, for the collection of urine. They are connected by two tubes, one on either kidney, with the bladder. He describes two short, broad veins leading from each kidney, which carry matter to the liver and give the appearance that the kidney is suspended from the liver (renal veins emptying into vena cava, opposite the liver?).

The stomach is the domain of pleasure and disgust by aiding good digestion and promoting good spirits. Some digestion occurs in the colon, which is the fleshy part of the intestine.

The spleen is the strainer for the blood. Jaundice from it gives a dark green color to the skin. It is a sieve. Frequently it becomes enlarged; rarely does it suppurate. In marshy regions it is especially affected.

The uterus he describes thus:

> In the middle of the flanks of women lies the womb. It is like an animal for it moves itself hither and thither, also obliquely to the right or left, either to the spleen or liver and it is subject to prolapse. In a word, it is erratic. It may be suddenly carried upwards, compressing the lungs, heart, diaphragm, liver, intestines and obstructing breathing and speech.

The brain is the site of sensation and the source of the nerves and the phlegm. Blood is the nourishment of the body, the food of all parts, the heat of all parts. It is the food of inflammation and must be removed in that state. Yet he is emphatic that blood must not be wasted and practiced bleeding most conservatively.

Various causes, some curious, are assigned for diseases. Cold and wet affect the respiratory tract. Climate plays an important part in causation; the dry air of Egypt causes throat disease; wasting, loss of flesh, causes anasarca and phthisis. Food, faulty in quantity and quality may produce angina, apoplexy, dropsy, dysentery, inflammation of the liver. Excess of wine causes angina, apoplexy, inflammation of the liver, paralysis and madness. Cantharides may cause an inflammation of the bladder or dropsy. The catheter may do injury to the bladder. A wound may cause tetanus, which is a very painful condition, rapidly fatal with spasms. A part of his description is as follows:

> Tetanus is an exceedingly painful, spasmodic affection following a wound, blow, abortion, or exposure to cold, and proving quickly fatal. It begins in the muscles and tendons about the jaws, extending thence to the whole frame. The convulsions bend the body backwards so that the head is lodged between the shoulder-blades (opisthotonos), or forward (emprosthotonos), or extended out straight. In all cases the jaws are locked so firmly that they can only with difficulty be pried apart. If the teeth be forcibly separated and liquid be forced into the mouth, it is not swallowed, owing to the contraction of the fauces, but is squirted out or held in the mouth, or regurgitated through the nostrils. The face is congested and variously distorted, the eyes are fixed or rolled about, the cheeks and lips are tremulous, there is grinding of the teeth, the jaws quiver, there is subsultus of muscles and there is a painful sensation of suffocation. The urine is retained or passed voluntarily.

A disease may arise from another disease. Suppression of urine causes the formation of calculus. Phthisis arises from damp and cold air. From a cough may come pneumonia, an ulcer of the lung or hemorrhage of the lung. Empyema follows pleurisy and especially the pleurisy of pneumonia. Disease of the liver may result from dysentery. Abortion may be followed by prolapsus and tetanus. Paralysis may result from gout. He knew the seventh day crisis of pneumonia and the meaning of rusty sputum. He describes the characteristic differences between arterial and venous hemorrhage. He pointed out that care must be taken in diagnosing the affected side of the face in facial paralysis and said that by noting "the difference between the two sides in laughter, speaking or winking of the eyes, the true state becomes evident."

Aretaeus stands out among the writers of the period, neurologically and psychiatrically. He devotes several chapters to Epilepsy and describes the aura. "The paroxysm of Epilepsy is preceded by circular flashes of purple or black, or it may be of all the colors of the rainbow, or by peculiar sounds, or by a bad smell, or by manifestations of irritability or anger, or by a feeling of dread, as of an attack of a wild beast." This is followed by contractions, first involving the thumbs and great toes and rapidly extending to the head, when the patient falls suddenly as if struck with a piece of wood or with a stone, and indeed this impression of having been maliciously struck down may remain after recovery, especially in first attacks.

> When the affection has become habitual, patients realize from the seizure of a finger or other part that a convulsion is coming on and call upon those present to bind or stretch such part. By such means the attack may be postponed for a time. With the fall the patient becomes unconscious, the hands are clenched, the limbs are stiff or are dashed hither and thither, the head is drawn forward so that the chain rests on the chest, or backward, or to one or the other shoulder. The lips are compressed or drawn apart, or stretched sideways over the teeth as if smiling. The tongue protrudes from the mouth, incurring the risk of being badly bitten, the eyeballs are rolled inwards, the eyelids for the most part wide apart showing the white and quivering, the cheeks are congested, the eyebrows frowning. Soon the whole countenance becomes livid and swollen, the

vessels of the neck are distended, the patient moans and makes gutteral noises as if he were being throttled, foam issues from the mouth, and there is erection of the genitalia. As the attack draws to a close there are unconscious discharges of urine, semen and feces, and the patient lies pale, torpid, heavy and exhausted. At length he rises up, the paroxysm being ended.

The chapter on the Etiology of Apoplexy has been lost, but there is one on the cure of apoplexy. He differentiates between the apoplexy of the old and that of the young. In the former, he recommends bleeding from the affected area, but not too much blood should be removed less one weaken the patient. One should not delay bleeding either, since it may save a life. He discusses paresis, paralysis and paraplegia in addition to apoplexy. The essential of all is the loss of sensation, loss of motion and feeling. Paraplegia affects an arm or leg by loss of motion. Paralysis causes only loss of motion. The rare loss of sensation, he says, should be called Anaesthesia.

Very interestingly he says that, when the paralysis is spinal, it is on the same side as the lesion and when it is in the brain, it is on the other side (crossed paralysis) and he knows that the nerves cross soon after leaving the brain.

Melancholia occurs:

> When in the course of a chronic disease, the black bile rises up to the diaphragm, which produces anger, sadness and great depression. The individuals are called melancholic because bile is synonymous with anger and black bile means strong, raging anger. Some fear to be poisoned, others are misanthropic and seek seclusion. Still others show a suspicious nature and finally are those who lose all desire to live.

In masterly fashion, he gives the bearing of temperature, of position in life, of occupation, of suppressed secretions (humors) on the origin of various mental diseases. The effect of these diseases on nutrition and health in general, he depicts faithfully. But, he does not mention the use of psychic therapy which Celsus used.

That he used the stages of physical diagnosis, becomes evident in the descriptions of disease which he has left. The notation of various types of breathing, of the fullness of the veins in heart disease, of the color of the skin in various affections and many other instances show that he made a careful inspection of his cases.

He noted enlargements of the liver and spleen and states that the boundaries of the enlarged liver may be outlined by the hand, applied with slight pressure to the abdomen, which sinks down in empty space at the end of the liver. He felt the enlarged spleen and says it was not tender to touch. These are a few examples which show that he used palpation.

Apparently he used percussion at times, for in his description of tympanites, he says, "The abdomen, when tapped, sounds like a drum, nor does the air shift its place when the patient changes his position. This is not the case, if fluid be present."

The evidence that he anticipated Laennec by some 1600 years, seems fairly clear. Hippocrates spoke of "Rhomgbi" or râles, which he heard in pneumonia, phthisis and empyema. Aretaeus uses the same term in his chapter on Asthma, which includes several diseases having dyspnea in common. Apparently the faithful student also ausculted the heart. In the chapter "On Syncope," where he discussed various conditions of the heart, this passage occurs:

> But the stomach is neither the origin or the seal of life; and yet one would be injured by atony thereof, for food which proves injurious to the heart, does not hurt the stomach itself, but, by it the heart; since those dying in such cases have symptoms of heart affections, namely, pulse small and feeble, *bruit of the heart* with violent palpitations, vertigo, fainting, torpor, etc.[1]

Notice that he does not lay especial stress on the bruit, but mentions it mixed with other symptoms. This would seem to indicate that it was nothing unusual to him. Since heart murmurs are rarely heard at any distance from the heart, it would appear that Aretaeus placed his ear on the chest over the heart and auscultéd the heart.

To therapeutics, Aretaeus devotes two books, containing forty-three chapters, quite in contrast to Hippocrates, who has very little to say on treatment. He used many drugs, acids, alkalines, emetics, purgatives, stomachics, diuretics, astringents, hemostatics. Local treatments practiced are leeches, cups, friction, massage, gargles, cataplasms, fomentations, blisters, ointments and baths. The catheter and the cautery are mentioned frequently. Venesection plays an important rôle and is used in almost every disease which he mentions. But, he always cautions to regulate the amount drawn by the strength of the patient. The more severe the disease, the greater the urgency to bleed. Especially in the diseases in which the brain is involved, is bleeding indicated. Cupping is frequently recommended in place of venesection, "because it does not weaken the patient." Both the dry and the wet cups are used. The former are recommended especially in Pleurisy. He mentions forms of venesection not known to us today, from the lingual veins in protracted throat affections, from the veins of the forehead, the pulse, the ankle, the pubes and the base of the hand. But the usual site is from the vessels which we use now.

Purgatives hold second place in his Therapy. The strongest are the hiera of aloes, hellebore and elaterium. Hellebore is the best and often efficacious when other remedies fail. Enemata were used, one type to remove fecal matter and another to affect withdrawal of the humors from the head, face and neck, in quinsy. Blistering the head with cantharides and trephining are recommended in diseases of the brain.

Taking individual diseases and symptoms, pleurisy is treated by dry cupping to the back, the shoulder or the hypochondria. Medicines, which attenuate the fluids and promote expectoration, such as brine with vinegar or honey or mustard moistened with honey water, are advised. The chest is to be covered with wool moistened with oil, natron and salts. Ligatures applied to all the extremities, help to stop the bringing up of blood, but unwashed sheep's wool, moistened with a liquid such as auster wine, is to be applied to the part from which the blood flows. But more important than any of these are the things to be taken by mouth. These are of three kinds, those that act by contraction or compression of the vessels, those that coagulate the blood, and those that dry up the blood. In cardiac disease, venesection is advised, but not too much less syncope be produced. The instructions on diet and drink are especially full in this chapter.

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[1] De Causis et Signis Acut. Morb. Book II, chap. iii.

Diet is of great importance in epilepsy, no flesh food being allowed. In fact throughout the books on therapeutics, great emphasis is placed on the manner of life, the careful regulation of living, exercise, massage, baths and diet. He prefers mild drugs but when energetic action is needed, he does not hesitate to advise radical measures. Of great interest is the fact that Aretaeus does not feel himself released from the duty of the physician when dealing with incurable disease, even though he has nothing to offer but sympathy and consultation. How far he has traveled in this from the teachings of the Hippocratic School.

Aretaeus' place in the history of diabetes mellitus is based on the fact that he gave to the disease its name. Celsus in "De Medicine" writes of a disease in which the overflow of urine is greater than the fluid intake, which causes emaciation and endangers life. He gives directions for treatment which vary according to whether the urine is thin (low specific gravity) or thick (high specific gravity). Whether this disease is diabetes mellitus is open to doubt.

Aretaeus names his disease "Diabetos." He goes a step further when he insists, as he does, on the part which thirst plays in the symptomology. I give you his description of Diabetes.

DIABETES, WHICH IS THE EXCESSIVE FLOW OF URINE

The affection called Diabetes is a wonderful but fortunately rather rare disease. It consists of a liquefaction of the flesh and bones into urine. As with Hydrops, the cause is of a wet and cold nature. The kidneys and bladder, the usual passageways of fluid, do not cease emitting urine and the outpouring is profuse and without limit. It is just as though the aqueducts were opened wide. The development of this disease is gradual (chronic) but short will be the life of the man in whom the disease is fully developed. Emaciation proceeds quickly and death occurs rapidly. Moreover, life for the patient is tedious and full of pain. The desire for drink grows ever stronger, but no matter what quantity (of fluids) he drinks, satisfaction never occurs, and he passes more urine than he drinks. He cannot be stopped either from drinking or from urinating. For if he be restrained even for a short time from drinking, the mouth becomes parched, the body dry and they feel as though all their viscera were being consumed by a raging fire. They despair of all and death occurs shortly amid a burning dryness, thirst as if caused by a burning fire. But, if the patient holds his urine for a time, no pain can be greater. The loins, the hips and the scrotum swell. When they pass urine again, they pour out the collected fluids, which have become heated, into the bladder and the swellings disappear. But, if the disease be fully established, recognition is easy. But, if it is still approaching, the patients have a dry mouth; the saliva is white and frothy as though they were thirsty, but the thirst is not yet fully developed; a heaviness in the hypochondiac region, a feeling of hot or cold passing from the stomach to the bladder is, as it were, the beginning of the approaching disease. They pass a little more urine than usually and have some thirst, but it is not yet severe. But, when the disease develops a little more the heat, though slight, is biting and is felt in the viscera, the abdomen develops folds, the veins stand out, and the body grows small when the urination and thirst have increased. And when the disease is at its height, they urinate constantly. From this fact, the disease has derived its name, "Diabetes," meaning "siphon." For fluids do not remain in the body, but use the body only as a channel through which they may flow out. Life lasts only for a time, but not very long. For they urinate with pain and painful is the emaciation. For no essential part of the drink is absorbed by the body while great masses of the flesh are liquified into urine.

The cause of the disease may be that some one of the acute diseases may have attacked these parts of the body and left behind in the crisis, some malignant poison. Also, it is not improbable that at times the cause may be some pernicious poison from one of the diseases which affect the bladder and kidneys; just as if one be bitten by a Dipas (Adder), a like symptom follows. For the bite of the Adder causes an unquenchable thirst in man. Though he drinks copiously, his thirst is not satisfied and his bowels crave drink. But, if he feels pain, due to the distention of his viscera and feels uncomfortable because of the amount of water he has drunk, if he restrains himself from drinking for a time, the thirst recurs and he drinks again copiously. The evil of the affliction is that thirst and drink eventually increase one another. There are other cases, which do not pass urine nor cease their desire for drink. These, because of the unsatiable thirst and the distention of the belly by fluids, burst open suddenly.

THE TREATMENT OF DIABETES

The disease, Diabetes, which is the excessive flow of urine, is a type of Hydrops, with which it has in common appearance and causation. It differs only in the location from which the fluids escape. For, in Ascites, the peritoneum is the site of the collection of the fluids and they have no escape, but accumulate there continuously. But, in Diabetes, the flow of humor is indeed the same and likewise the emaciation, but the water passes to the kidneys and bladder and is thus voided. In Ascites, this occurs only when the patient is so fortunate as to recover from the disease. This is well, if the cause be explained and not only the burden be lightened. For in Diabetes, the thirst is greater and the overflow of fluid drys up the body.

But the remedies for stopping the melting are those which are of value in Hydrops. But, there is a need of a real medicine for the thirst, which is of all types of pain, the greatest. If fluid be taken, it causes urination and the urine carries off with it many parts of the body which have been liquified. Therefore, what is needed, is a medicine to control the thirst. For the thirst is great and the desire to drink is unsatisfiable. No amount of drink can stop the thirst. Therefore, we must direct treatment towards the stomach, which is the site of the thirst. When you have purged the body with Heira, use Epithemus (local application), made of Nard balsam, Mastic, Dates and raw Quinces. Especially good as a lotion is the juice of Quinces with Nard and Oil of Roses. A plaster of the pulp of Quinces with Mastic and Dates is useful. Also a mixture of these with wax and a salve of Nards is good for moistening. Likewise, and as a plaster, use the juice of Acacia and of Kytinus Hypocistis (astringent). Furthermore, the water used to drink should be that which has been boiled with many fruits. As food use milk, and with it use cereals, starch, groats and gruels, a stringent wine, undiluted, as a tonic for the stomach. If it be little diluted, it aids in emptying and dispersing the other humors, for they cause the thirst. In fact wine, which is at the same time astringent and cooling, acts equally because of its transforming and cooling properties, while a sweet wine, just as does blood, increases strength because it forms blood. In the same way various medicines are used, Theriaca and Mithridatica, and those obtained from the rind of the autumn fruits (which the Greeks call "Opwram") and all others which are useful in Dropsy. Likewise the whole diet and mode of life is that which is prescribed in Dropsy.

Unfortunately we cannot say what the treatment of dropsy was, since that chapter is missing. Some five hundred years later Hindu medical authorities wrote of the "Madhu Meha" or honey urine and the Arabs knew and treated diabetes mellitus. Just as were lost for more than a thousand years the writings of Aretaeus, so sugar disappears from the literature for the same length of time to be refound by Thomas Willis (1612–75).

The opinion has been expressed by no lesser student of the history of medicine than Dr. Osler that, "I doubt very much whether Corvisart in 1800 A.D. was any more skillful in recognizing a case of pneumonia than was Aretaeus in the second century A.D. When one has read the pages of this old master, one cannot help but be impressed greatly by the scholarly presentations of disease which he has left us."

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THE PRACTICE OF MEDICINE AMONG OUR ABORIGINES

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THE Jesuit Fathers, who were sent out to New France as early as 1610 to Christianize the aborigines along the St. Lawrence River and its tributaries, wrote home to their superiors for many years very clear accounts of the religion, the materia medica and the medical practice of the Huron Indians and other native nations living around the Great Lakes. I shall not attempt to quote the exact words of the "Jesuit Relations," but shall endeavor to give in a brief manner an idea of some of the therapeutics existing among these Indians at the time they first came in contact with the white man.

The Indians believed in a Great Spirit that was good and a Great Spirit that was bad and the author of all evil. They saw this good Great Spirit in the beneficient forces of nature, and the works of the bad Great Spirit in the evils which befell them. They were intensely religious and were continually offering thanks for the good which happened to them, setting aside certain days of the year for thanksgiving and feasting. With their prayers of thanks they supplicated that all evil might be spared them. They believed man had a soul which after the death of the body lived forever in a delightful place prepared by the good Great Spirit. Like all primitive people, and some not so primitive, they mixed their treatment of disease in a woeful manner with their religion. The Indians had no word corresponding in meaning to our word medicine; their word in our language meant magic. Their priests were their physicians, they were their magic-men or in English medicine-men. They dealt in taboo and claimed the power to intercede with the Spirits and thus control the actions of men as well as influence the course of their diseases. They also used drugs for the cure of certain natural maladies. They divided all diseases into three classes: (1) diseases resulting from natural causes; (2) diseases caused by the soul of the patient being desirous of something which the sick one did not have; (3) diseases caused by sorcerers. The first they endeavored to cure by roots, barks, decoctions from leaves and other natural things. Vegetable emetics and sweat baths were favorite remedies. They often prayed that the good Great Spirit would give more power to their remedies than was usually accorded them. The third class of diseases they treated with charms, taboo and sleight of hand tricks which passed as miracles. The medicine-men dressed themselves in all kinds of fantastic costumes, took long fasts and went into trances the better to frighten away the witches or the evil genii which possessed the sick one. The patient, brought up from infancy to believe in the controlling power of unseen evil spirits, easily lent himself to the influences which the medicine-man brought to bear upon him.

In the second class of diseases the medicine-man practiced psychiatry.

The Hurons persuaded themselves that the soul revealed its first desires in dreams which are its own voice. If these dreams were fulfilled it remained content; otherwise it was vexed and no longer sought good and happiness through the body, but revolted against it, causing various infirmities and often death. If dreams were complied with and sickness remained, the medicine-man was called in to find the desires of the soul not expressed by dreams. They contended that there were desires born in the depths of the soul which were not in any way connected with their conscious knowledge, and that these desires came about through certain migrations of the soul into other beings. It was the duty of the medicine-man to discover these secret desires of the soul of the sick one and have its wants supplied. He claimed to have the power of supernatural vision bestowed upon him by the good Great Spirit. Without the use of natural remedies he endeavored by his spiritual power to divine the secret desires of the soul, which were spitefully tormenting the patient's body. Often he would hide in some secluded place where he contended he could see images of the desires of the afflicted soul. These desires were made known to the patient and his friends and his life was directed accordingly. The sick man would have been ashamed often to ask for the things his soul desired for his bodily recovery if the command had not come from the medicine-man. Coming from this source there was no shame attached. The request might be for exorbitant things, gifts, banquets, indecent dances which were never danced except upon such occasions, and it would have been impiety and sacrilige to have refused any of these. The "Jesuit Relations" record that the patient would often declare improvement to his health even though he felt worse than before the soul's desires were provided. He would often arise to his feet and proclaim the efficacy of the remedy although it was vain and useless.

If the patient did not get well it was evidence that there still remained some secret desire of the inner soul which had not been discovered. The "Relations" add that no hospitals were needed among the Indians because there were neither mendicants nor paupers as long as there were any rich people among them. Their kindness, humanity and courtesy made them liberal with what they had and resulted in their possessing hardly anything except in common. A whole village must be without corn before an individual would be obliged to endure privation.

When the medicine-man had determined that a certain object was necessary, or a certain act must be performed for the cure of his patient, no matter how expensive the thing or how mutilating, painful or disgusting the act, all his relatives and friends endeavored to accommodate him quickly. This spirit of service among the Indians was truly remarkable and almost unbelievable. A squaw was known to make a journey of 400 leagues over the snow and ice to secure the black robe of a Jesuit Father which was desired by a soul as voiced in a dream. One of the Jesuit Fathers relates that while he was with the Hurons a prominent warrior, having dreamed that he was in the hands of an enemy who was cutting off one of his fingers with a sea-shell, suddenly awoke and at once arranged to have his finger cut off in the presence of all to whom he related the dream. He used a sea-shell instead of a knife. The shell was none too sharp and it sawed its way through the flesh and tendons causing excruciating pain. Even an arm or a leg would have been sacrificed if the dream had demanded it. The confidence of these Indians in dreams and witchcraft was so great that a fellow warrior would have been burned at the stake if a dying man had demanded it on account of a dream. A dying man, as the result of a dream or a prescription from the medicine-man would often be surrounded by bells, awls, knives and a "thousand trifles," (trifles in the opinion of the Jesuit Father) all his friends striving to see who could be the most liberal. If a patient died the medicine-man exculpated himself by saying that he had failed to discover some important desire of the dead man's soul. Failure to cure never shook the confidence of the medicine-man or the patient's friends in the correctness of their theory and the treatment of disease.

It was considered cruelty, even murder not to give a sick person the object of his soul's desire as expressed in a dream or as discovered by the medicine-man. Some would impoverish themselves in their endeavor to supply the things desired by the soul of a sick friend. Occasionally a warrior would pretend illness and claim that his soul demanded through a dream something which he greatly desired, knowing that his dream would be satisfied and he would thus enrich himself. The honesty and integrity of the Indians, however, were such that deception was almost unknown.

As illustrations of the power of dreams over the thoughts and actions of the Indians of this period many cases are related which happened under the eye of the Jesuit Fathers. Father Jean de Quen says that some would be so foolish as to run nearly naked through the village; some would be mischievous; some would carry water through the crowd, which they squirted from their mouths; some would pick up red hot coals and ashes from the fire, throwing them around without any care upon whom they fell; some would break up everything in their way, dishes and the whole domestic outfit. Others would run about with knives, tomahawks, sticks and javelins threatening to strike whomever they met. And all these would continue in their antics until each had his dream fulfilled.

Sometimes those who had dreams would keep the actions or the things demanded by the soul to themselves, or would express in riddles or by some covert meaning or possibly only by gestures the things to be obtained; but they would never quit until their thoughts were divined. The good Father relates that one of these maniacs, as he called them, determined that he should guess his dream and satisfy it. The Father declared at the outset that he would not do so and left the fellow storming and raving in the cabin. At another time a squaw armed with an arquebus, which she had obtained through her dream, rushed into the Father's cabin shouting and singing, saying she would have to go to war against the Cat Nation in order to fulfill a dream, and if she did not go she would be lost to this world and damned in the next. Another curious instance; a warrior dreamed that he was a Diviner, and he dreamed that he could guess the place of any hidden article. He was ridiculously attired and carried a divining-rod just like our modern artist who claims he is able to locate oil or water with a peach-tree switch. He would use the rod to point out the place of concealment; but before this was done a companion would take a mouthful of some kind of liquor which was carried and would blow it into the face and upon the hands and the wand of the diviner, then he would find the object in question. At another time a woman came into a Father's cabin and arranged a mat as if she were endeavoring to catch fish, thus indicating the desire of her soul as expressed in a dream. At another time, a village chief had a dream which called for human hearts and no one was able to guess his desires, although he never ceased his foolish actions for two or three days. Just what happened to him is not related. A young warrior had a dream that he was buried in ashes and on awakening he called ten of his friends about him to make the illusion a reality. They first had a feast and then in the words of the Father "They acquitted themselves most excellently of the commission, covering him with ashes from head to foot, and rubbing them into his nose, ears and all parts of his body." The Father was much disgusted but the rest of the company viewed this ridiculous ceremony with silent admiration.

As crude and primitive as these superstitions were there was some evidence of Freudism in their philosophy. In fact, the Jesuit Fathers said that their chiefs were of high intelligence and kindness, and were very logical concerning things about which they had knowledge.

(The material comprising this article is taken from "The Indians of North America," two volumes by Edna Kenton. This work consists of the "Jesuit Relations and Allied Documents" as refer directly to the Indians.)

INCUNABULA OF THE CLEVELAND MEDICAL LIBRARY ASSOCIATION*

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Folio.

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Large folio.

Jacobus Foroliviensis (Giacomo Della Torre). Expositio in primum librum canon is Avicennae.—Hugo Senesis [Ugo Benzo]. Quaestio de malitia complexionis diversae. Pavia, Christophorus de Canibus, for Hieronymus de Durantibus, 1488.
Folio.

Arculanus, Johannes. Expositio in Avicennae Canonis quarti Fen primam. Editio Princeps. Ferrara, Andreas Gallus, 1489.
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Folio.

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Folio.

Avicenna. Canon de medicina. [Translated into Latin by Gerardus Cremonensis and with Commentary by Gentilis de Fulgineo.] Venice, Baptista de Tortis. 1490–1495.
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Gulielmus de Saliceto. Summa conservationis et curationis. Chirugia. Venice, [Marinus Saracenus] 1490.
Folio.

Jacobus Foroliviensis [Giacomo Della Torre] Expositio in aphorismos Hippocratis. Venice, Philippus Pincius, 1490.
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Picus Morandulanus, Joannes. Heptaplus de septiformi sex dierum geneseos enerratione. Editio Princeps. [Florence, Bartolommeo di Libri, *c.* 1490.]
Folio.

Jacobus Foroliviensis [Giacomo Della Torre] Super I. II. et III. Tegni Galeni. Venice, Baptista de Tortis, 1491.
Folio.

Silvaticus, Matthaeus. Pandectae medicinae. [Edited by Georgius de Ferrariis after Matthaeus Moretus.] Venice, Philippus Pincius for Bernardinus Fontana, 1492.
Folio.

Haly Abbas. Liber medicinae dictus regalis. [Translated into Latin by Stephanus. Edited by Antonius Vitalis.] Editio Princeps. Venice, Bernardinus Ricius, Novariensis, for Johannes de Nigro, 1492.
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Matthaeus de Lucha. De diebus criticis Dialogus. Editio Princeps. Rome, [Andreas Freitag] 1493.
Quarto.

Gradibus ex Ferrariis, Joannes Matthaeus de. Expositiones super Avicennae

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* Compiled by J. C. Harding, Librarian. Received for publication April 18, 1930.

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Augustus, Quiricus de [xiv. cent.] Lumen Apothecariorum cum certis expositionibus noviter impressum. Venice, Joannes et Gregorius de Gregoriis, 1495.

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Ketham, Joannes de. Fasciculus medicinae. [Including Mundinus's Anatomia edited by Petrus Andreas Norsianus.] Venice, Joannes and Gretorius de Gregoriis, 1495.

Folio.

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Quarto.

Manliis, Joannes Jacobus de. Luminare maius. Venice, Bonetus Locatellus, for Octavianus Scotus, 1496.

Folio.

Rhazes, or Abu Bakr, Muhammed. Liber ad Almansorem. [With other Medical tracts.] Venice, Bonetus Locatellus, for Octavianus Scotus, 1497.

Folio.

Hugo Senensis (Ugo Benzo). Exposition super aphorismos Hippocratis et Galeni commentum. Venice, Bonetus Locatellus, for Octavianus Scotus, 1498.

Folio.

Avicenna. Canonis de medicina libri, i, iii, et iv. Fen prima. [With commentary by Jacques Despars, chief physician to Charles vii of France.] Lyons, Jean Treschel and [completed by] Jean Clein, 1498. 3 vols.

Large folio.

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Folio.

Valascus de Taranta. Practica quae alias Philonium dicitur, una cum introductorio Joannis de Tornamira. [Accessit Jacobus de Partibus. Summula alphabetum super plurimis remediis ex antidotario Mesue excerptis.] Lyons, Nikolaus Wolff, 1500.

Quarto.

[From Nüremberg Chronicle, 1493.]

[From Schenckius: Observationum Medicarum, Francofurti, 1609.]

EDITORIALS

AN AMERICAN PHYSICIAN'S WAR BOOK ABOUT THE REVOLUTION

IN view of the present revival of interest in books dealing with personal experiences during the Great War it may be of interest to direct attention to a book written by an army surgeon, who served throughout the War of Independence, which excited sufficient interest to run through three editions, of the first of which President John Adams wrote, "I have no hesitation in saying that it is the most natural, simple, and faithful narration of facts that I have seen in any history of that period." The work to which he referred was, "A Military Journal during the American Revolutionary War, from 1775–1783," which was published by James Thacher in 1823. It was dedicated to John Brooks, a physician who after distinguishing himself as a soldier during the Revolution, achieving the rank of colonel and commanding his regiment with bravery and skill, became governor of Massachusetts. The author, James Thacher, was the first American medical historian whose book "American Medical Biography," published in 1828, is a most valuable source of information on the early medical history of this country. Thacher was born at Barnstable, Massachusetts, in 1754. He studied medicine under the distinguished Dr. Abner Hershey, of Barnstable, and had just completed his apprenticeship in 1775, when the war began. His only medical degree was an honorary one, conferred by Harvard in 1810. In July, 1775, he was appointed a surgeon's mate in the provincial hospital at Cambridge, Mass. Later he became surgeon to a line regiment, and in the last year of the war he was surgeon in the Continental Army Hospital. From his own writings and the testimony of his contemporaries it is evident that he was an honorable, conscientious, hard-working man, possessed of considerable surgical ability and a great deal of good common sense. He had a kind heart and was ever ready to do his best to lessen the severity of the sufferings of the sick in his care. That he also had a gay disposition and enjoyed the good things of life is plainly shown by the zest with which he describes occasional festivities in which he took part. In February, 1778, he and some other officers in the army hospital in Albany engaged a dancing-master to teach them the art, and he subsequently mentions a number of occasions in which he exercised himself in it. Thacher had a good sense of humor. He relates numbers of amusing anecdotes some at his own expense. Old General Israel Putnam visited the hospital. He noticed many men suffering from the itch, and asked why they were not cured. Thacher replied, "because we have no hog's lard to make ointment." "Did you never," says the General, "cure the itch with tar and brimstone." "No, Sir." "Then," replied he good-humoredly, "you are not fit for a doctor."

Thacher had the honor of dining at Washington's table on several occasions. He gives an interesting account of a visit paid by Washington to his hospital and says that he took a deep interest in the patients and inquired minutely into their treatment and accommodations. His description of Washington's personal appearance is interesting:

> He is remarkable tall, full six feet, erect, and well-proportioned. The strength and proportion of his joints and muscles, appear to be commensurate with the preeminent powers of his mind. The serenity of his countenance, and majestic gracefulness of his deportment, impart a strong impression of that dignity and grandeur, which are his peculiar characteristics, and no one can stand in his presence without feeling the ascendancy of his mind, and associating with his countenance the idea of wisdom, philanthropy, magnanimity and patriotism. There is a fine symmetry in the features of his face, indicative of a benign and dignified spirit. His nose is strait [sic], and his eyes inclined to blue. He wears his hair in a becoming cue, and from his forehead it is turned back and powdered in a manner which adds to the military air of his appearance. He displays a native gravity, but devoid of all appearance of ostentation.

We know of no book which depicts more vividly the daily life of a soldier, its hardships, fun, and dulling routine. Duels were of frequent occurrence among the officers, and Thacher served as the accompanying surgeon at one or more of these events. He also had the melancholy duty of witnessing a number of military executions. From his account of the reasons for these and their number it is evident that the discipline of the Continental Army was very severe. On one occasion Thacher relates how *eleven* soldiers were brought out to be executed simultaneously, eight by hanging, three by shooting. "The criminals were placed side by side, on the scaffold, with halters round their necks, their coffins before their eyes, their graves open to their view, and thousands of spectators bemoaning their awful doom." At this moment an officer appeared with pardons for all but one of the offenders. The unfortunate exception was duly hanged.

Some New Jersey troops mutinied in January, 1781. Thacher accompanied the troops under command of General Robert Howe, who were sent to suppress the mutiny. The discontented men surrendered when they found they were surrounded by a superior force. Three of the ringleaders "were tried on the spot, Colonel Sprout being President of the Court Martial, standing on the snow, and they were sentenced to be immediately shot." Twelve of their most deeply implicated fellow mutineers were required to carry out the orders of the Court Martial. Two of the condemned were shot, the third was pardoned. Thacher was much affected by the scene.

Two other punishments which were frequently meted to minor offenders were flogging and running the gauntlet. Thacher had some doubts about the moral effect of the former but thinks that on the whole it possessed some efficacy. He narrates a number of interesting cases which he observed, among them that of a Captain Greg, who had been completely scalped and had two tomahawk wounds which penetrated his skull. He had been ambushed by Indians near Fort Stanwix, and left lying for dead. He had several other tomahawk wounds, and a musket ball had passed through one of his arms, yet he recovered completely. Thacher speaks of the number of men whose wounds were infected with maggots because owing to inadequate facilities they had lain where they fell for a long time before removal to a hospital. During the campaign in northern New York against Burgoyne, the surgeons had not only many patients who had been scalped by the Indian allies employed by that General but also some who had been bitten by rattlesnakes, those reptiles being very frequent around Saratoga.

At the battle of Bemis' Heights, October 7, 1777, Benedict Arnold was wounded in the leg, and on October 12th, Thacher records, "The last night I watched with the celebrated General Arnold, whose leg was badly fractured by a musket ball while in the engagement with the enemy on the 7th instant. He is very peevish and impatient under his misfortunes, and required all my attention during the night." Three years later Thacher was with his regiment in camp at Tappan when they were hurriedly marched to West Point at the news of Benedict Arnold's treason and flight. Thacher witnessed André's execution of which, while fully approving its justice, he gives an affecting account.

One year later, October, 1781, Thacher after serving at the Siege of Yorktown, witnessed the surrender of Cornwallis. Thus he was a participant in the Siege of Boston which really began the hostile operations, and at that of Yorktown, which practically ended them. Throughout the whole War Thacher was actively employed and as can be seen witnessed some of its most important events. After the War Thacher settled in Plymouth, where he practised until his death in 1844, at the good old age of ninety. While best known by his "American Medical Biography," his "Military Journal" added greatly to his fame. A book which in those days went through three editions in the lifetime of its author could be justly called a best seller. The "Journal" is realistic enough in some of its pages to meet the demands of the most modern, while its quite old-fashioned literary style is less offensive to the taste than that of most of the modern war books.

FRANCIS R. PACKARD.

PROCEEDINGS OF THE SIXTH ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE, MAY 7, 1930

The sixth annual meeting of the American Association of the History of Medicine was held at the Hotel Traymore, Atlantic City, Wednesday, May 7 at 2:00 P.M. with the President, Lieut. Col. Fielding H. Garrison, in the chair.

Following the vote of the previous year an afternoon scientific program had been arranged, as well as the customary dinner and address in the evening. The Minutes of the previous meeting, and the Secretary Treasurer's report were read and filed.

The following officers were elected for the ensuing years: President, Dr.

A. S. Warthin; Vice-President, Dr. David Riesman; Secretary-Treasurer, Dr. Carl V. Weller; Incoming member of Council, Dr. E. B. Krumbhaar. The other members of the Council are Drs. Miller, Webb, Hemmeter and Welch.

The Association now has eighty-nine members. During the past year two members died, Dr. Chas. W. Richardson in August, 1929, and Dr. Richard M. Pearce in January, 1930, and two have terminated their membership.

Attention was called to the eighth Congress of the International Association of The History of Medicine, of which this Association acts as the American branch. This Congress will be held in Rome September 22 to 27, 1930, and an unusually interesting preliminary program has been announced. Meetings will be held at the Capitol and at the Accademia dei Lincei. It is hoped that as many of this Association as possible will attend. Membership in the Congress may be obtained from Prof. Dr. Vincenzo Rocchi, Corso Vitt. Emanuele, 173, Rome (100 Lire or about $5.00, which includes a copy of the Proceedings).

According to the vote passed at last year's meeting, arrangements were made with Dr. Packard to have our Proceedings published in the Annals of Medical History. This was done*; but it has not proved possible to get notices published of the meetings of the various small medical history groups through the country.

Dr. William H. Welch, who was prevented by a conflict of dates from attending this meeting, asked to have attention called to the fact that William Beaumont has been nominated for the American Hall of Fame, Morton being the only physician who has thus far been elected. Information about the election, which takes place this year, can be obtained from Robert Underwood Johnson, 331 Madison Avenue, New York City.

Following a discussion of the future of the Index Catalogue of the Surgeon General's Library, referred to in a letter recently sent out by General Ireland, it was

Resolved that it is the earnest hope of this Association that the Index Catalogue of the Surgeon General's Library may be continued in the Fourth Series, along the same lines as, but even more complete than, the previous Series, and that it would be a loss of the gravest importance to medical science throughout the world and in this country especially, if this publication were to be stopped or continued in less useful form. And be it further

Resolved that a copy of this Resolution be forwarded to the Surgeon General of the United States Army.

Discussion as to the nature and date of the next meeting was held but no motion passed, the matter being left to the discretion of the President, which is according to the regulations of the Constitution.

The afternoon's program was carried out as follows, the meeting adjourning at 5:15 P.M.

Dr. Carl V. Weller; "Lead Poisoning in the English Books of Trades," Dr. Victor Robinson: "Historical Landmarks in Gonorrhea," Dr. Burton Chance: "Sources of Inspiration in Medicine." Dr. John C. Hemmeter: "Geography and Race History."

Doctor A. S. Warthin "The Physician of the Dance of Death."

Meeting adjourned at 10:10 P.M.

E. B. KRUMBHAAR.

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* ANN. M. HIST., N.S., 1: 729, 1929.

BOOK REVIEWS

Human Biology and Racial Welfare. Ed. by Edmund V. Cowdry. Introduction by Edwin R. Embree. Illus. N. Y., Paul B. Hoeber, Inc., 1930.

At the present time when the importance of biology in association with sociology, hygiene, eugenics and all the other studies appertaining to the welfare of the human race is more appreciated than ever before the value of a collection of authoritative presentations of the various aspects of such relations can hardly be overestimated. In a composite book of this character in which everyone of the twenty-five chapters has been written by a recognized authority in the field which he covers, it is impossible to give a detailed review of each contribution. A recapitulation of its leading features will suffice to show its value and importance. Part i, entitled "Perspective," contains but one chapter, "Life in Space and Time," by Henry Norris Russell. The problems with which it deals concern what is the necessary atmosphere to sustain life, whether life exists on other planets, how long has life been possible on our globe, and how long may it continue. All of these subjects are considered in the light of the marvellous investigations, chemical, spectroscopic, etc., which have thrown so much light upon them in recent years. Part ii is entitled "The Origin of Man" and contains six chapters. A. B. Macallum, writing of "Evolution Traced Biochemically," favors the hypothesis that life will originate anywhere in the universe where the conditions favoring its origin obtain, which as he is careful to state is very different from that of spontaneous generation. From the earliest protocyte Macallum traces the gradual evolution of higher forms of life until after millions and millions of years man arose, to pass yet more millions in the passage to his present status.

In "The Animal Ancestry of Man" William K. Gregory gives a splendid summing-up of the latest views on this much debated subject. This article contains some especially notable illustrations showing the development of various structures and the author's descriptions of the evolution of higher types from lower forms is particularly lucid. This chapter is followed by one on "The Evolution of the Brain," by George H. Parker, whose clear exposition of so difficult a subject is most excellent. "The Mental Evolution of the Primates," by Robert M. Yerkes, is an excellent study of behaviorism in the various groups of this order. "Societal Evolution," by W. M. Wheeler, considers the formation of societies or groups of human beings and shows the inadequacy of most of the theories that have been brought forward to explain the tendency to grouping so generally manifested in the human race. The theory that it seems to arise from the necessity for a division of labor would appear the most probable. The chapter on "Human Races," by Aleš Hrdlička sums up our knowledge of the different races of man and traces their origins from primitive stocks. This is a particularly timely article in view of the widespread interest in the various racial qualities which has been brought about by the immigration problem in this country.

Part iii deals with "Man as a Physiological Unit." E. V. Cowdry leads off with a chapter on "The Vital Units called Cells," which is followed by a chapter by Alexis Carrel on "The Relation of Cells to One Another." These two chapters, written by the foremost students of the subject, constitute a most important contribution to cytology and physiology. Like most of the other articles in the book the clearness with which they are written adds greatly to their value, especially when it is considered that for many readers the subject would be difficult of comprehension unless most lucidly explained.

The same may be said of the two following chapters, "The Integrative Action of the Vascular System," by W. B. Cannon, and "Nervous Integrations in Man," by J. F. Fulton and C. S. Sherrington.

These difficult subjects are splendidly presented by their distinguished authors. The "Integration of the Sexes—Marriage" is well treated by Clark Wissler.

Part IV, "The Effects of Environment," opens with a chapter on "The Effect of Climate and Weather" by Ellsworth Huntington, followed by one on "The Reaction to Food" by Elmer V. McCollum, in which these important subjects are discussed from all the many angles which they present in their relation to human welfare. "The Influence of Urban and Rural Environment" is a quite unusual study of the relative disadvantages and advantages of life in the city as contrasted with life in the country.

William Healy contributes a valuable article on "Antisocial Behavior, Delinquency and Crime." Hans Zinsser has written a valuable contribution to immunology, "Adjustment to Infectious Disease," and Sir Humphry Rolleston's chapter, "What Medicine Has Done and Is Doing for the Race" is a charming presentation which it is to be hoped will be read by laymen as well as physicians. R. A. Millikan has a short paper on "The Relation of Science to Industry," and John Dewey writes on "the Influence of Education."

Part V, "The Future," begins with an excellent short study on "The Inheritance of Disease," by the lamented Paul A. Lewis, who died shortly after completing this bit of work. Raymond Pearl has a chapter on "Some Aspects of the Biology of Human Populations" and Charles B. Davenport one on "The Mingling of Races" which are of much interest from the sociological point of view, as is also Edwin Grant Conklin's chapter on "The Purposive Improvement of the Human Race." These three articles are particularly noteworthy for the sanity and lack of prejudice with which the topics they consider are treated. The concluding chapter by H. A. Overstreet, "The Intentional Shaping of Human Opinion," is a short study of some of the methods which may be used to influence the mental attitude for good or evil.

The Editor of "Human Biology and Racial Welfare" deserves high praise for the conception of such a work, but even more should be given him for the skill with which he has carried out his scheme. We know of no composite work which can present a more illustrious set of contributors, but even more important is the splendid manner in which Dr. Cowdry has coordinated their labors and the excellent balance which is preserved between the various chapters. They fit into one another perfectly.

Too often the medical man knows but little of the biological and social problems which present themselves every day in his work. Quite unwittingly he pursues his daily task unconscious of some of the vital problems which concern both him and his patients. The careful reading of a book such as this is a stimulus of untold value and should arouse many a doctor from the intellectual apathy which merely routine attention to his round of professional duties is but too apt to engender.

FRANCIS R. PACKARD.

CLIO MEDICA. A Series of Primers on the History of Medicine.

The name of the Muse of History with the qualifying adjective is given to a series of handbooks, of which these three are the first to be published, which deal with special phases of the history of medicine. The editor, Dr. E. B. Krumbhaar, has chosen contributors whose names are evidence that each volume will be well done. The idea of such monographs, if they may be so termed, is an excellent one and its realization should do much to increase the interest in the history of medicine which is such a marked feature of recent times. These brief accounts of special periods or particular phases of the development of medicine should appeal to the medical student, the practitioner and the student of history. *Historia vero testis temporum, lux veritatis, vita memoriæ magistra vitæ, nuntia vetustatis.*

THE BEGINNINGS: Egypt and Assyria. By Warren R. Dawson, F.R.S. New York, Paul B. Hoeber, Inc., 1930.

The earliest known medical documents are those of Egypt and Assyria and to them we must look for the oldest records of the healing art. It is proper that a study of the origins should open this series of books. The Valley of the Nile saw much of the development of learning. The author gives an excellent chapter on the first medical books with special reference to the Ebers Papyrus, written about 1500 B.C. but the sources of which probably go back much further. The importance on medical knowledge of the influence of the custom of mummifying the dead is brought out in an interesting way. It not only gave information of the structure of the body but tended to overcome prejudice against dissection, which enabled Greek anatomists to carry out dissection in Egypt. The relationship to Greek medicine is one of the important connections of Egyptian medicine. It is evident that the study of mummies and their surroundings has given much light on the early history of Egypt. It has also given us much information on the diseases of the period. Was it by chance that they buried the dead in the desert sands by which the bodies have been preserved rather than in the moist soil near the river? In the early Assyrian texts the Code Hammurabi (2250 B.C.) takes an important place. In both systems of medicine there is a combination of magic and drugs, useful and useless. It is interesting to note how many superstitions, some of which have prevailed to the present time, may be traced back to Egyptian medicine. An example is the use of skinned mice as a remedy.

This book is heartily commended as an introduction to the study of the history of medicine. Its reading should stimulate further study of these early sources.

MEDICINE IN THE BRITISH ISLES. By Sir D'Arcy Power, K.B.E., F.R.C.S. Illus. New York, Paul B. Hoeber, Inc., 1930.

It was a happy choice to select Sir D'Arcy Power, with his extensive knowledge of the subject, as the author of this book. To give so much information in small compass is not easy. There is not much to say of British Medicine until the fifteenth century but from then on much of its history is that of the various Guilds. The author points out that the history of medicine is very closely connected with the history of the various corporate bodies. These are usually a puzzle to the American both as regards their history and their positions today. The key to the puzzle is given here very clearly and compactly with much light on the influences which they exerted on medicine in general and on medical education. There are chapters on the development of hospitals, medical education, specialism, nursing, medical societies and some masters of British medicine. There is an excellent bibliography which, with the text, should stimulate the consultation of the more elaborate works. This is a most interesting and readable summary of the development of medicine in the countries from which American medicine derived much of its inspiration in earlier days.

THOMAS MCCRAE.

ANATOMY. By George W. Corner, M.D. Illus. New York, Paul B. Hoeber, Inc., 1930.

It is much harder to write a concise, and yet comprehensive, résumé of a large subject than it is to write a full history of it. In this small book Dr. Corner has succeeded in his difficult task in a most satisfactory manner. Beginning with the Greeks and Galen he has touched upon all the essential high spots of the subject down to the latest important developments in histology and embryology. The illustrations which accompany the text are chosen with care and illustrate the changing anatomical conceptions from the Middle Ages to Mondino, and Vesalius to the present day. Although necessarily written in most concise fashion the text reads agreeably, and nothing essential is omitted from this most interesting little history of the development of one of the most fundamental branches of medical science. The little book can be heartily recommended as a most useful guide to the study of a most important branch of medical history. A valuable list of the sources for the study of the subjects in the modern languages is appended.

FRANCIS F. PACKARD.

LETTERS OF DR. RICHARD D. ARNOLD. By Richard H. Shryock. Historical Papers of the Trinity College Historical Society. Double Series XVIII-XIX. Durham, N. C., Duke Univ. Press. 1929.

Many physicians have distinguished themselves in other lines than those belonging strictly to their profession, in politics, literature, art, etc.; but with a few exceptions, such as S. Weir Mitchell and Oliver Wendell Holmes, they are held in remembrance for the great preponderance either of their professional or their lay activities. The correspondence of Dr. Richard D. Arnold, ably edited by Dr. Shryock, throws light upon a man who not only was distinguished for his contributions to medical science, but also for the conspicuous part which he played in public affairs in his day. Dr. Arnold was born in Savannah, Georgia, in 1808, and died in the same room in which he first saw light in 1876. His parents were Northerners who had migrated South, and they sent their son to college at Princeton, where he graduated as Master of Arts in 1829. He received his medical degree one year later from the University of Pennsylvania. Although in the preface to his letters it is stated that he served as a resident physician at the Pennsylvania Hospital it is doubtful if he did so, as his name does not appear on the list at the Hospital of those who served in this capacity. He probably studied in its wards and received the certificate given to those who had done so. In 1832 he began practice in Savannah, where for over thirty years he was physician to the Poor-House and Hospital, besides attending to the duties of a very large private practice. He was deeply interested in every movement which could elevate the standards of the profession, aiding in forwarding the American Medical Association in 1846, and the Georgia State Medical Association in 1849. When Savannah Medical College was organized in 1850, Arnold was appointed Professor of the Theory and Practice of Medicine. In 1834 the epidemic of cholera which had been sweeping the United States for two years, reached Savannah. Arnold treated many cases with success, although he abandoned the most usual method of employing opium and camphor, stating that it "stopped the discharge but not the disease."

On his trip North to the meeting at which the organization of the American Medical Association was effected, Dr. Arnold stayed in Philadelphia, where he enjoyed meeting Jacob Randolph, the distinguished surgeon, W. W. Gerhard, the famous physician who some years before had established the differentiation between typhus and typhoid fever, and many other distinguished physicians.

Dr. Arnold and the celebrated Alfred Stille, of Philadelphia, were elected the two first secretaries of the American

Medical Association. In the course of his attendance on medical conventions and other travels he formed friendships with men like George C. Shattuck, in Boston, and Fordyce Barker, in New York. Although loyal to his state during the Civil War, Dr. Arnold buried the hatchet at its conclusion and did much to aid his community during the hard days of the Reconstruction Period. As Mayor of Savannah it fell to his lot to surrender the city to General Sherman. Dr. Arnold made a number of contributions to medical literature, especially on yellow fever and dengue, or "break-bone" fever. His letters present a vivid picture of contemporary social life in the North as well as the South. In Philadelphia, Boston and New York he was hospitably entertained. There is a notable description of a dinner given by Dr. Fordyce Barker to Bret Harte. Arnold describes the personality of those present and also the viands, and particularly the wines, of which they partook. He was evidently not a little proud of his knowledge of good vintages. This collection of letters is of value to all interested in the social life of the middle of the last century, and of particular interest to the medical historian.

FRANCIS R. PACKARD.

A TREATISE ON THE CANON OF MEDICINE OF AVICENNA, incorporating a Translation of the First Book. By O. Cameron Gruner, M.D. London, Luzac and Co., 1930.

Since Dr. Friend published his "History of Physick" in the early years of the seventeenth century English students of medical history have generally acknowledged the preponderating influence of the Arabians on the medicine of the Middle Ages, and every history of medicine from Friend's to Garrison's contains a number of pages devoted to the subject. In 1926 Dr. Donald Campbell published his most delightful book, "Arabian Medicine and its Influence on the Middle Ages." Nevertheless with the exception of the translation of Rhazes' "Treatise on the Small-Pox and Measles," by Dr. Greenhill, published by the Sydenham Society in 1884, the classic writings of the Arabian physicians have been inaccessible to English and American scholars because of the lack of adequate translations. Avicenna, the "Prince of Physicians," was born about 980 and died in 1037. He practised at Bagdad, the capital of the Eastern Caliphate, during the apogee of Arabian science, and for five hundred years after his death his "Canon" was regarded as the *summum bonum* of medical writings, in both the East and West, and he was held in equal esteem with Galen in the schools of Europe. With the birth of European medical science which followed the translation from the original Greek into Latin of the works of Hippocrates and Galen, the publication of the "De Fabrica" of Vesalius in 1543 and the discoveries of William Harvey and his successors the influence of the Arabians waned until it largely disappeared as an active factor in medical teaching and study. For many years it became customary to regard the great Arabian medical authors as merely transcribers into Arabic of the writings of the Greeks, and to consider that their chief service to medicine had been the preservation in more or less corrupt form of the writings of Hippocrates, Galen and other Greek fathers of medicine. Of late the pendulum has swung in the other direction and we are beginning to realize the originality and truly scientific spirit shown in the literary remains of many of the Arabians, notably Rhazes, Avicenna, Isaac Judaeus, and Albucasis. Dr. Gruner has performed a great service by his translation of the first book of the "Canon" of Avicenna. The translation is accompanied by a large number of invaluable notes and comments on the text. These bring out among other things the close connection between Chinese and Arabic medicine, and the profound influence which Avicenna exerted upon Thomas Aquinas and other medieval schoolmen in the development of their philosophic thought.

In reading the text one is struck with the modernity of Avicenna's attitude towards many problems. He resembles Hippocrates in his insistence on clinical study, and though he attaches much weight to astrology as an adjuvant to medicine he does not show the tendency to grovel in superstition which prevailed in European medicine to the period of the Renaissance.

This work of Gruner's is much more than a mere translation of Avicenna; it is an exposition of his work and thought and therefore of the source of his influence. The book is beautifully produced, and contains a number of well chosen illustrations, and many valuable tables which lend themselves greatly to the comprehension of the text. It is a splendid contribution to a little understood though very important branch of medical history.

FRANCIS R. PACKARD.

THE CREED OF A BIOLOGIST, A BIOLOGIC PHILOSOPHY OF LIFE. By Aldred Scott Warthin. N. Y., Paul B. Hoeber, Inc., 1930.

At a time such as this when dogmatic or formal religion is failing in many instances to satisfy the spiritual needs of man it is an excellent thing that one of wide culture, with many years of contact with students and other teachers, should undertake to formulate some of the ideas and deductions he has drawn from his learning and experience. Starting with the proposition that man must have some form of religion or philosophy by which to guide his life, he asks what this shall be for the scientifically educated mind that finds itself unable to accept a religion founded upon dogma or revelation. Intellectual progress has outstripped religious progress and it is necessary to search for something to replace the creeds and dogmas which no longer suffice to satisfy the necessity for a rational guide to our course through life. Dr. Warthin thinks that Modern Science does point out a definite goal and a definite road by which that goal may be attained. We find ourselves in a section of the stream of life, a stream which may be said to be immortal, beginning untold millions of years ago with the first chemical combination to constitute a vital cell, and gradually increasing in the complexity of the forms evolved until we, "who are alive on the earth at this present moment, represent the summation of this victorious progress of life through the countless ages of slow ascent and adaptation." Throughout the Universe, Modern Science reveals more and more clearly that everything is built on law. As everything else in the Universe, Man must conform to this law. There is no anthropomorphic God. "The educated mind replaces the conception of a personal God with the greater but immaterial conception of the Law. Call this what you will: God, Deity, Infinite Spirit or the Law, it matters not . . . what hides behind the Law, its origin, its meaning, its destiny, all are hidden from us." The object of life is purely biologic, the continuance and progressive evolution of better forms. In this process every individual plays his part as the potential head of an infinitely long line of evolutionary development. "The reproduction of the species is, therefore, the biologic aim of life," and, "The only immortality we have any knowledge of is that of the germ-plasm." "Is there no inspiration to be derived from the knowledge that we have impressed ourselves indelibly upon immortal life, and in doing that, have achieved at least a sort of impersonal immortality." These propositions lead Dr. Warthin to his major theme, the importance of knowledge and obedience to the laws of heredity and eugenics. When he asks, "Shall not the knowledge of the hereditary transmission of both the normal and abnormal qualities in the germ-plasm and the variation in value of different family stocks replace the old blind and illogical factor of sex-attraction?" we fear his demands are too far in excess of human nature to warrant a belief that they will be complied with, at any rate within a calculable future.

As he says what is needed is proper instruction of young people in the broad biological aspects of sex relations. The propaganda for birth-control should be replaced by that for better children. The State should control marriages, favoring the eugenic and preventing the noneugenic. His philosophy is that of the individual living primarily for the race and ultimately submerged in it.

Although many will differ strenuously from Dr. Warthin's views because of their antagonism to the prevailing religious conceptions nevertheless the sound basis underlying those which deal with biology and human welfare demand earnest attention. He has presented what is probably the viewpoint of many scientists in an original, bold and truthful form.

FRANCIS R. PACKARD.

BIOGRAPHIES LEXIKON DES HERVORRAGENDEN AERZTE ALLER ZEITEN UND VOLKER. Ed. 2. Durchgesehen und erganzt von Prof. F. Hübotter und Prof. H. Vierordt. 2 vols. Aaskow-Gyulay. Berlin, Urban und Schwarzenberg, 1929.

The first two volumes of this elaborate biographical dictionary contain a great amount of interesting material and naturally arouse expectations of great interest. Unfortunately these expectations are not as well fulfilled as might be hoped. The work is based on the splendid "Biographisches Lexikon" of Hirsch plus the biographies contained in the Lexikon of Pagel. To the biographies included in those two standard works have been added a number of sketches of the lives of physicians who were not included in the previous works, or were still living at the time they were written. There are some errors in the spelling of proper names which one would not expect to find in a German work of this character. For example Sir Clifford Allbutt's surname is spelled "Alibutt." Also the notices of American and English physicians seem in many instances lacking in their proportionate values. Thus William Beaumont's notice occupies but eleven lines of text, nearly four of which are filled by the titles of his two publications, whereas those of Nathaniel Chapman, Gurdon Buck, Amariah B. Brigham and others occupy much more space although their professional achievements are as nothing compared with those of Beaumont. The editors would have done wisely to consult Kelly and Burrage, "Dictionary of American Medical Biography," instead of deriving most of their American medical information from W. B. Atkinson, "Physicians and Surgeons of the United States," which was published in 1878, and was largely compiled of biographic sketches of then living physicians, furnished by themselves. The biographies of Teutonic physicians are, as would be expected, much better than those of physicians of other nationalities. It is a pity to feel obliged to mention flaws in a work of so great a scope and of such general usefulness. Perhaps the following volumes will manifest more careful editorial supervision. As it is, the work is of the greatest value to the medical historian.

FRANCIS R. PACKARD.

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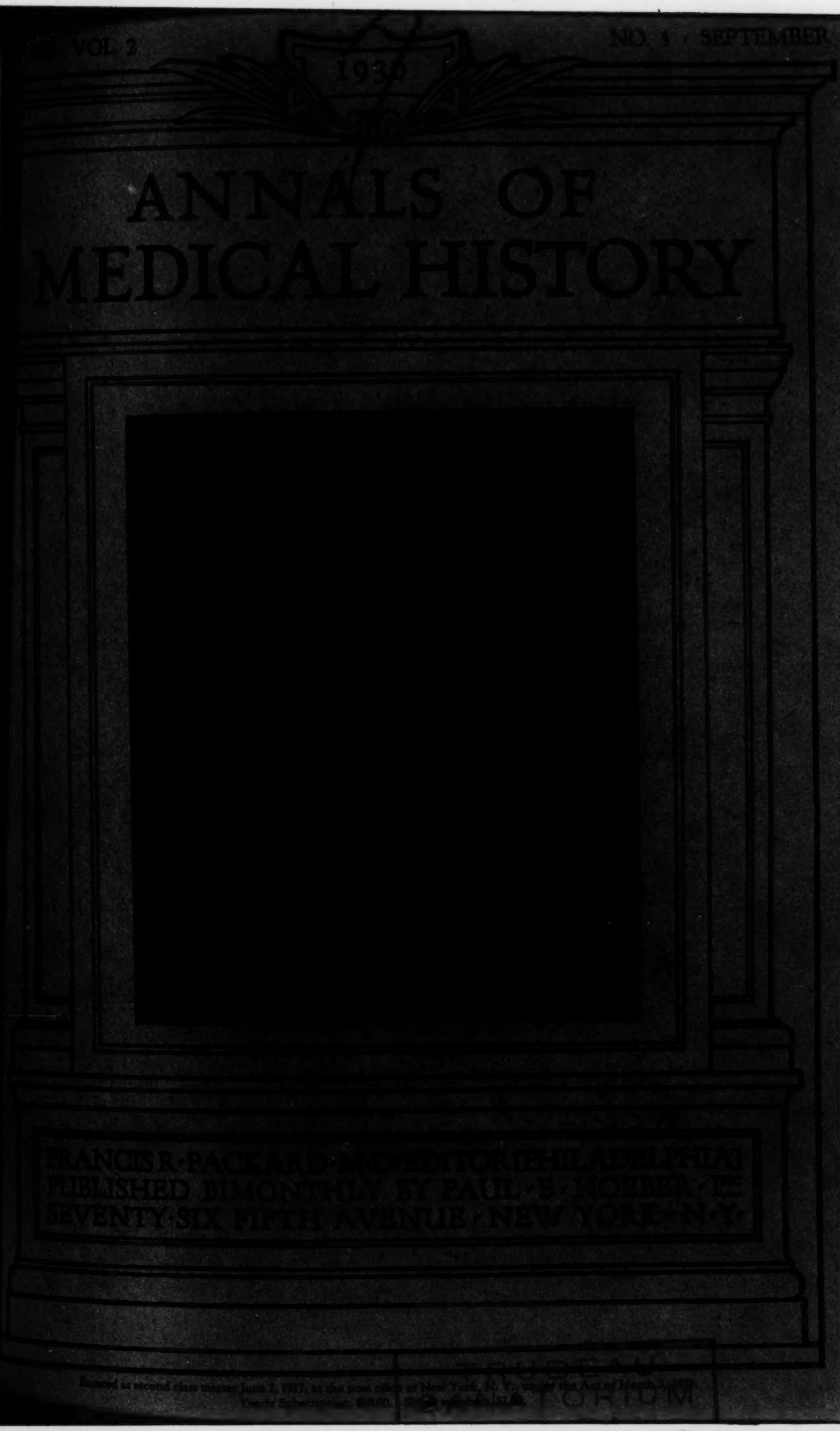

VOL. 2 · 1930 · NO. 5 · SEPTEMBER

ANNALS OF MEDICAL HISTORY

FRANCIS R. PACKARD M.D. EDITOR PHILADELPHIA
PUBLISHED BIMONTHLY BY PAUL B. HOEBER INC
SEVENTY-SIX FIFTH AVENUE NEW YORK N.Y.

Entered as second class matter June 2, 1917, at the post office at New York, N. Y., under the Act of March 3, 1879.
Yearly Subscription, $8.00. Single numbers, $2.00.

ANNALS OF MEDICAL HISTORY

Editor: FRANCIS R. PACKARD, M.D., Philadelphia

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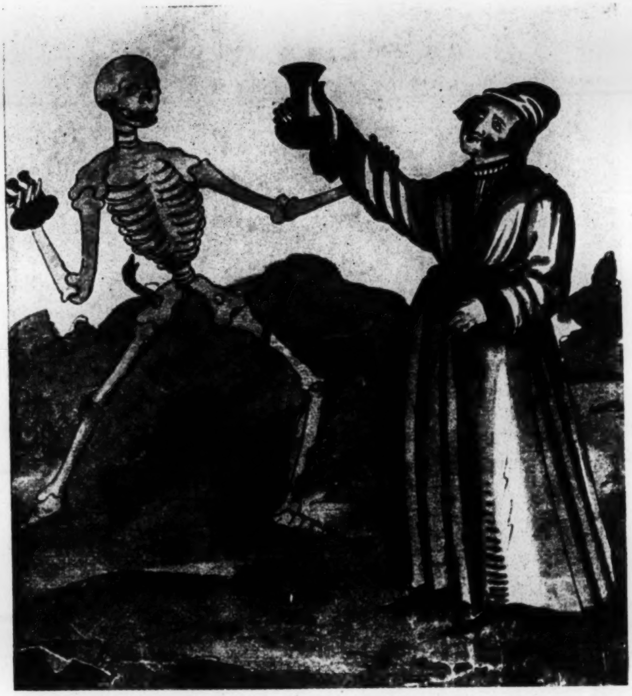

Death and the Physician, from the Zimmern Totentanz Manuscripts of the 16th Century. Original in the Königsegg Library at Aulendorf.

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